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Review by Steve Levin

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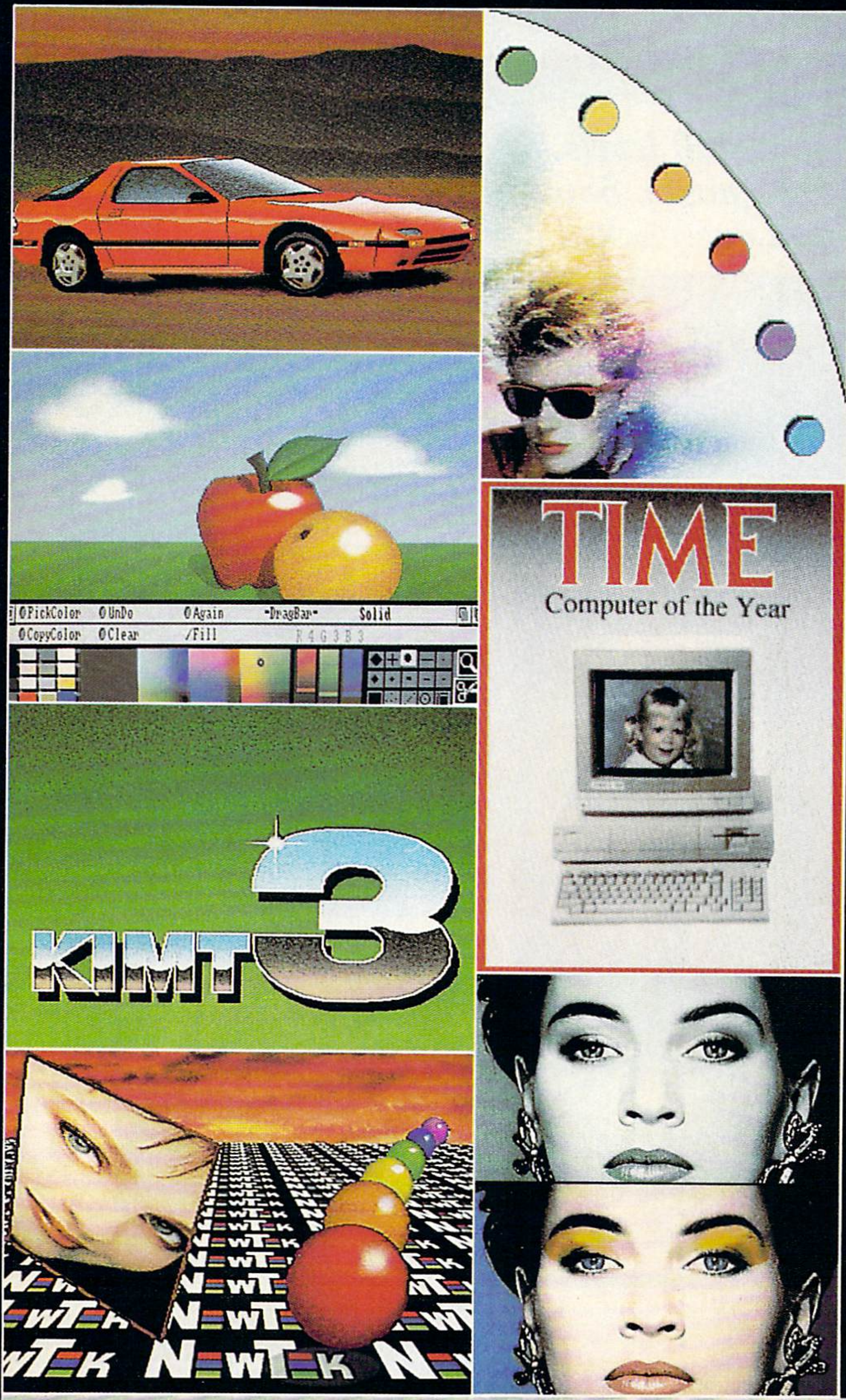
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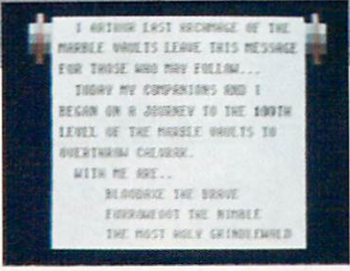
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Commodore
M A G A Z I N E

FEBRUARY 1988, *Volume 9, Number 2*



70



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FEATURES

COVER STORY

COVER PHOTO: *Charles Bartholomew*
Software: *Yie Ar Kung-Fu* by Konami

DEPARTMENTS

To the Editor:

In your November issue, you directed a letter inquiry of John Robertson of Orlando, Florida to an inexpensive but not necessarily the best bowling secretarial package for leagues. You listed the vendor as if it were the only one or the best one for the price.

We have been publishing bowling software since 1980 for the PET, Commodore 64, and now for the Commodore 128 (in native mode). The products are kept up to date with the latest twists in scorekeeping and our package in its numerous editions is in use worldwide.

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Sincerely,
Harry Briley
Owner, Briley Software

P.S. We also distribute software for volleyball...

Editorial Response: *We apologize for excluding you from our answer. In fact, we searched high and low for any bowling league secretary. For more information, write to: Briley Software, P.O. Box 2913, Livermore, CA 94550-0291. Or call: (415) 455-9139.*

To the Editor:

In August '87, my best friend and I were asked to represent our computer club (Great Lakes Commodore Club) at an Air/Expo in the local area.

We started to set up our booth about 9 a.m. We loaded all our computer gear on a cart, all our software and our hardware, with my Commodore 1571 disk drive on top, without the box it came in, just sitting going for the ride. I realize that this was not a very smart thing to do, but at the time we just wanted to set up because we were running late. The disk drive was approximately three feet above the ground. We had to take the cart over some grades on the ground. We slowed down, but it was too late, and the drive crashed into the cement with a thud. At the same time my heart stopped with a thud.

The only external damage was a chip on the backside near the serial port, but in my mind I knew the inside was destroyed. When it came time to power up the drive we crossed our fingers . . . and got no light . . . nothing . . . it was dead.

I began to dissemble the drive expecting to find a million little pieces inside. When I opened it up I found the connector that goes from the power cord to the drive had disconnected, so I reconnected it and put it all back together. I hooked it back up to the computer and powered everything up. It all seemed to work fine, so I tried loading a program. It worked!!! It has been working great ever since that day.

If anybody asks me how I like Commodore's disk drive I'll tell them it passed the Drop Check Drive Test.

Sincerely,
Troy Franklin
Great Lakes, Ill
GLCC Member

To the Editor:

I read with interest the article "Giving Your Computer a Home" in the August issue. Having purchased a Commodore 64 for my 70th birthday I thought you would be interested in how I made maximum use of minimum space. You see I live in a mobile home and am limited for space. To maximize my space I mounted the computer on the set of hide-away brackets that were designed to hide mixers, etc. under a kitchen counter. When not in use the computer unlatches and swings down under the desk top. I hope you find this of interest for those with limited space. In the beginning I was so doubtful that I actually drew the entire project up in scale to see if everything would fit before I spent my money. Out of sight under the desk top is a shelf that holds a ream of paper—talk about not wasting space.

I hope you find this of interest, especially for people with limited space to use. I have been dropping a lot of hints, hoping someone subscribes to *Commodore Magazine* for me.

Sincerely,
Leslie E. Veit
Morrisville, PA



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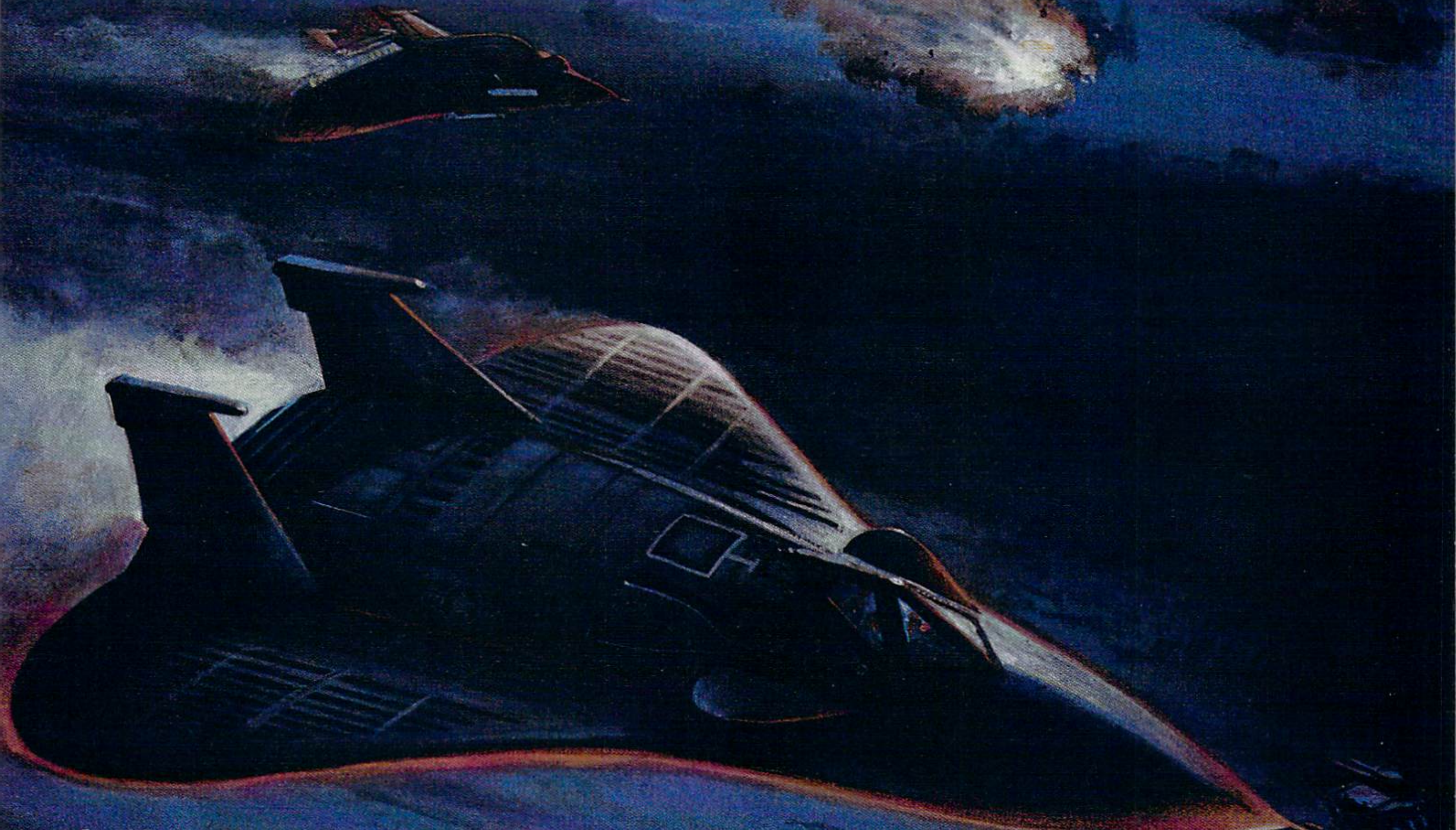
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Commodore Magazine, Volume 9, Number 2, February 1988.
Commodore Magazine is published monthly by Commodore Magazine Inc., 1200 Wilson Drive, West Chester, PA 19380. U.S.A. U.S. subscriber rate is $35.40 per year; Canadian subscriber rate is $45.40 per year; Overseas subscriber rate is $65.00 per year. Questions concerning subscription should be directed to Commodore Magazine Subscription Department, Box 651, Holmes, Pennsylvania 19043. Phone (800) 345-8112. In Pennsylvania (800) 662-2444.
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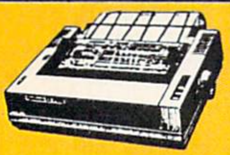
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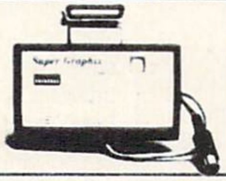
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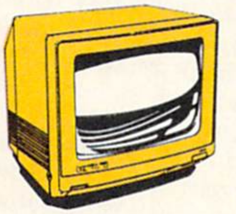
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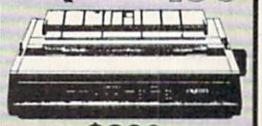
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01/88

Mission Graphics Support



The Commodore Amiga 2000 recently assumed a staring role at the opening of Mission Graphics Support, the world's first computer art gallery. Located in New York City's East Village, Mission Graphics Support showcases twelve vibrant Amiga-generated collages by New York artist Sandra Filippucci. Filippucci used Electronic Arts' **DeluxePaint II** and NewTek's **Digi-View** to compose the collages and a color laser printer to produce hard copy.

President Elect Contest

Strategic Simulations, Inc. is sponsoring a contest for users of **President Elect — 1988 Edition**. The contest is open to any U.S. resident of any age. Players whose Democratic and Republican candidates are the same as those on Election Day, November 8, 1988, and whose electoral vote count comes closest to matching the actual election results will win a cash prize. Contest rules may be obtained by writing to "President Elect Contest," Strategic Simulations, Inc., 1046 N. Rengstorff Ave., Mountain View, CA 94043.

C-ZAR

Diemer Development has introduced **C-ZAR**, an Amiga Editor and Librarian for the Casio CZ-101 and CZ-1000 keyboards. Over 200 instruments and sound effects can be played or modified. **C-ZAR** enables the user to fine tune the Casio's six powerful eight-step envelopes. The program retails for $195. An Amiga-to-MIDI interface is also available for $55. For details contact: Diemer Development, 12814 Landale St., Studio City, CA 91604-1351. Phone: (818) 762-0804.

New Amiga Products at Comdex

Several companies introduced new or upgraded products for the Amiga in the Commodore booth at COMDEX Fall in Las Vegas, November 2-6. They are:

Aegis Development, Inc. showed their newest animation and graphics system, **VideoScape 3D**. **VideoScape 3D** lets users create music videos, product demonstration tapes, training films, special effects or anything requiring sophisticated 3D graphics and animation. Suggested retail price is $199.95. For further information contact: Aegis Development, 2115 Pico Blvd., Santa Monica, CA 90405. Or call: (213) 392-9972.

American Liquid Light, Inc. was demonstrating **Imprint 2.2** for the Amiga. **Imprint** allows users to interface the Polaroid Palette Film Recorder to the Amiga 500, 1000 or 2000 to produce 35mm or Polaroid instant film output from any Amiga software package. Photos or slides can be made of all IFF and HAM images. For more information contact: American Liquid Light, Inc., 2301 W. 205th St., Suite 106, Torrance, CA 90501. Or call: (213) 618-0274.

Anakin Research, Inc. previewed two new models of its Easyl pressure-sensitive drawing tablet. The new models for the Amiga 500 and 2000 transmit drawings sketched with pen and paper into AmigaDOS 1.2 mouse-based software. For more information contact: Anakin Research, Inc., 100 Westmore Dr., Rexdale, Ontario, Canada M9V 5C3. Or call (416) 744-4246.

Byte by Byte Corporation was showing **Animate 3-D**, an animation package used to choreograph objects made with **Sculpt 3-D**. **Animate 3-D** retails for $149.95 and requires **Sculpt 3-D** ($99.95) as its object editor. For details contact: Byte by Byte Corporation, Arboretum Plaza II, 9442 Capital of Texas Highway N, Suite 150, Austin, TX 78759. Phone: (512) 343-4357.

Electronic Arts introduced **DeluxeProductions**, a 16-color high-resolution graphics presentation tool. The program allows users to manipulate graphics with a wide variety of editing techniques and special effects. **DeluxeProductions** is compatible with the Electronic Arts Deluxe Family of products or any program that supports the IFF standard. For further information contact: Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. Or call: (415) 571-7171.

MicroWay announced their first Amiga product: **FlickerFixer**, a video graphics enhancer that eliminates flicker and visible scan lines of the Amiga 2000 display. The board plugs into the video expansion slot of the Amiga 2000 and is fully compatible and transparent with all user software. Suggested retail price for **FlickerFixer** is $595. For more information contact: MicroWay, P.O. Box 79, Kingston, MA 02364. Or call: (617) 746-7341.

NewTek, Inc. was showing **Digi-View 2.0**, an enhanced version of their popular color image capture system. New features include support of all resolution modes, enhanced hold-and-modify mode for increased color resolution and compatibility with the Amiga 500 and 2000. **Digi-View 2.0** retails for $199.95.

In addition NewTek previewed their Video Toaster, a real-time, color digitizer, and broadcast-quality genlock. The product includes pre-programmed effects such as: page flips, page turns, spheres, splits, stop motion and mosaics. Suggested retail price is expected to be under $1000. For details contact: NewTek, 115 W. Crane St., Topeka, KS 66603. Phone: (913) 354-9332.

Progressive Peripherals and Software, Inc. demonstrated their new database, **Superbase Professional**. The program combines interactive forms, programmability, telecommunications and text editing. For more information contact: Progressive Peripherals and Software, Inc., 464 Kalamath St., Denver, CO 80204. Or call: (303) 825-4144.





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Maxx-Out! Series

Epyx, Inc. has released three titles in the company's new Maxx-Out! series of entertainment software for younger gamers. **Rad Warriors** transports the player to 2500 A.D. where he must save the human race from invaders from another world. In **Arctic Antics: Spy Vs. Spy** the player must escape from an iceberg before a deadly blizzard or an enemy spy catches up to him. **Boulder Dash Construction Kit** is a race to mine diamonds through a series of caves. Players have the option to play the game provided or design their own games using the construction kit. Suggested retail price is $24.95. For details contact: Epyx, Inc., 600 Galveston Dr., Redwood City, CA 94063. Phone: (415) 366-0606.

Sons of Liberty and Panzer Strike

Strategic Simulations, Inc. has released two new programs for the Commodore 64. **Sons of Liberty** simulates three battles of the American Revolution: Bunker Hill, Saratoga, and Monmouth. Suggested retail price is $34.95.

Panzer Strike! is a World War II simulation in which one or two players engage in individual squad/tank level combat on the Eastern and North African fronts as well as combat involving the British Army throughout Europe. **Panzer Strike!** retails for $44.95.

For more information contact: Strategic Simulations, Inc., 1046 N. Rengstorff Ave., Mountain View, CA 94043. Or call: (415) 964-1353.

Microfiche Filer Updates

Software Visions, Inc. has released the Microfiche Filer Text Import Utility into the public domain. The utility disk, available on Fred Fish Disk #103, on PeopleLink, Q-Link and BIX, allows the importing of fixed format text files into **Microfiche Filer** databases. In addition, a **Microfiche Filer** Version 1.02 update is available for $9 directly from Software Visions. The update provides full support for European characters. Software Visions is also asking **Microfiche Filer** users to submit useful databases to include on subsequent updates. Published database donors will be credited by name on the disk and will receive the next update free. For more information contact: Software Visions, Inc., 26 Forest Rd., Framingham, MA 01701. Or call: (617) 877-1266.

Amiga Assembly Language

TAB Books, Inc. has released **Amiga Assembly Language Programming** by Jake Commander. The 240-page book provides an overview of assembly language, including binary arithmetic and the syntax, addresses and effects of assembly commands. The hardbound version sells for $19.95, the paperback version for $13.60. For further information contact: TAB Books, Inc., P.O. Box 40, Blue Ridge Summit, PA 17214. Phone: (717) 794-2191.

Thunder Mountain Classics

Mindscape's Thunder Mountain Division has released five classic titles at bargain prices for the Commodore 64. They are: **Pac Man, Ms. Pac Man, Dig Dug, Pole Position** and **Galaxian**. Each retails for $9.95. for further information contact: Thunder Mountain Division, Mindscape, Inc., 3444 Dundee Rd., Northbrook, IL 60062. Or call: (612) 452-4730.

4th & Inches

Accolade's latest release is **4th & Inches**, a football simulation that incorporates 22 players, a full-width and length field, 20 plays and 11 formations. Available for the Commodore 64, **4th & Inches** retails for $29.95. For details contact: Accolade, 20813 Stevens Creek Blvd., Cupertino, CA 95014. Or call: (408) 446-5757.



Airborne Ranger and Project Stealth Fighter

MicroProse Software, Inc. has released two new games for the Commodore 64. **Airborne Ranger** is the first MicroProse program in which the player controls the movements of an individual soldier instead of an aircraft or submarine. The simulation begins with a joystick-controlled parachute drop, followed by 12 different search and destroy, rescue, infiltration and sabotage missions in three different geographic regions. The program retails for $34.95.

Project: Stealth Fighter simulates the radar-elusive jet fighter believed to be part of the U.S. Air Force arsenal. The program features an advanced cockpit with two display screens a radar scope and 3D out-the-window view. **Project: Stealth Fighter** retails for $39.95. For more information on both products contact: MicroProse Software, Inc., 120 Lakefront Dr., Hunt Valley, MD 21030. Phone: (301) 771-1151.

Border Zone

Infocom has released **Border Zone**, a work of interactive fiction with an espionage theme by Marc Blank. Woven around an assassination plot the game consists of three chapters. In each chapter you assume a different identity from an American businessman to a KGB agent. **Border Zone** provides Invisi-Clues that reveal as much help as you want. The program is

Continued on pg. 12

"FEEL LIKE CHALLENGING A 3-TIME WORLD CHAMPION?"

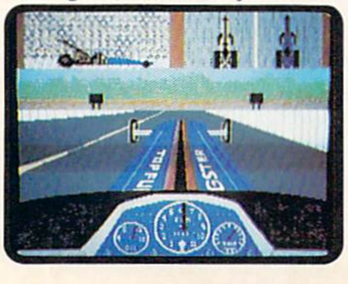


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Continued from page 10

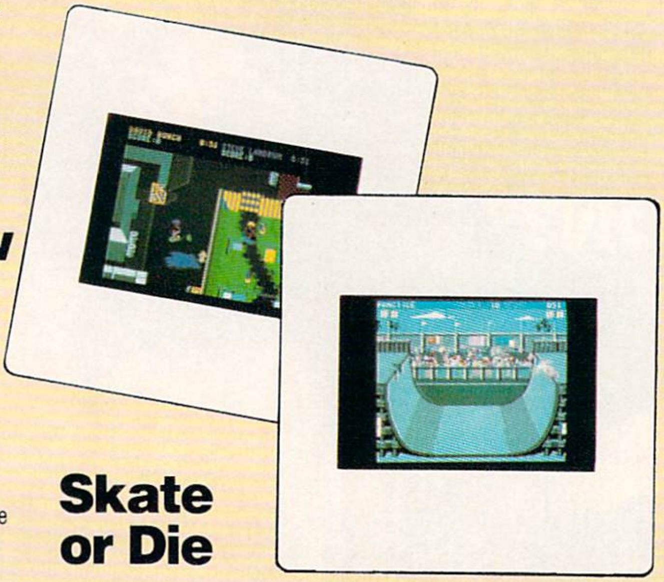
available for the Commodore 64 for $34.95. For details contact: Infocom, Inc., 125 CambridgePark Dr., Cambridge, MA 02140. Phone: (617) 492-6000.

SourceView Math Programs

SourceView has released two new educational programs for the Commodore 64. **Addition Tutor** allows students to receive step-by-step help on addition problems, and **Math Pop Quiz** teaches addition, subtraction, multiplication and division to students at various levels of ability. Both programs incorporate color graphics and sound to enliven math practice. Each retails for $19.95. For more information contact: SourceView Corporation, 835 Castro St., Martinez, CA 94553. Or call: (415) 228-6220.

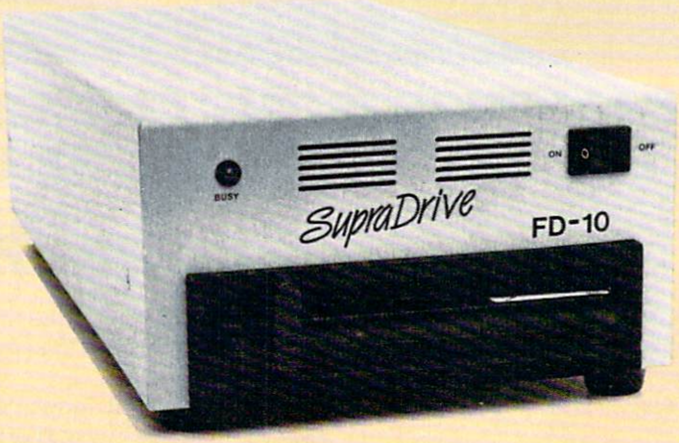
Galactic Frontier

Free Spirit Software, Inc. has released **Galactic Frontier**, a space exploration game for the Commodore 64. In **Galactic Frontier**, the user searches for life forms among the 200 billion stars in our galaxy. Stars, planets and moons are represented in realistic graphics, and all data about each star are accurate according to current scientific knowledge and theory. The program is available for $29.95 from: Free Spirit Software, Inc., 905 W. Hillgrove, Suite 6, La Grange, IL 60525. Phone: (312) 352-7323.



Skate or Die

Electronic Arts has released **Skate or Die** a skateboarding simulation and competition. Players can participate in five different events, three of which are modeled after real skateboarding competition in which as many as eight people can compete. **Skate or Die** is available for $29.95. For further information contact: Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. Or call: (415) 571-7171.



SupraDrive FD-10

Supra Corporation has announced the release of their SupraDrive FD-10, a 10MB removable floppy disk drive for the Commodore Amiga. The SupraDrive FD-10 combines features of both floppy and hard disk drives. Each removable 5.25-inch diskette can hold a full 10MB of data, which can be accessed at speeds approaching hard disk drives. The unit retails for $1095. For details contact: Supra Corporation, 1133 Commercial Way, Albany, OR 97321. Phone: (503) 967-9075.

Perfect Vision

SunRize Industries is introducing Perfect Vision, a real-time video digitizer for the Commodore Amiga. The product allows you to transfer a video image from VCR, camcorder or video camera into your Amiga. Perfect Vision will capture an image in 16 gray scales in 1/60 of a second. Color images can be captured from a color camera or a black and white camera using the supplied color wheel. Suggested retail price is $219.95. For more information contact: SunRize Industries, 3801 Old College Rd., Bryan, TX 77801. Or call: (409) 846-1311.

Superstar Soccer

Mindscape, Inc. has released **Superstar Soccer**, the latest sports simulation for the Commodore 64 from their SportTime line. Using the same techniques as their popular **Superstar Ice Hockey**, you can elect to play, coach or manage your soccer team. One or two players can compete against each other or challenge a computer opponent. **Superstar Soccer** retails for $34.95. For further information contact: Mindscape, Inc., 3444 Dundee Rd., Northbrook, IL 60062. Phone: (312) 480-7667.



1987 - Expanding Scenery disk coverage; East Coast, Japan, & Europe



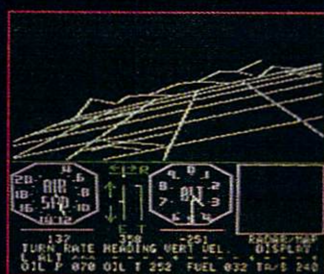
1986 - Flight Simulator II for the 68000 computers



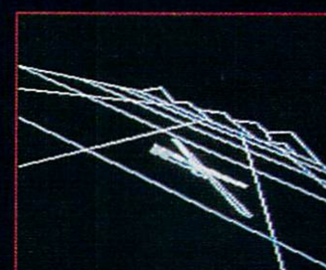
1985 - High-performance Jet flight simulator for the IBM, Commodore 64, and Apple II computers



1982/1983 - Microsoft Flight Simulator & Flight Simulator II



1979 - 3D graphics applied to the original FS1 Flight Simulator for the new Apple II and TRS-80 computers



1977 - SubLOGIC's 3D graphics package in BASIC and M6800 Assembly Language

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"Using WORD WRITER is an absolute joy." **Run Magazine**

"PARTNER may become the most valuable utility you have... Timeworks has another winner, and deservedly so." **Compute's Gazette**

"DATA MANAGER 2 is easy to use, well documented with an excellent tutorial...and, powerful enough to make life easier for many homes and small businesses." **Ahoy!**



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Lou Sander's Tips & Tricks

Compiled by Louis F. Sander

Once again this month, readers from several continents have blessed us by sharing the finest fruits of their fertile minds. Among this outstanding group are two delightful amusements and a wonderful series of program protection tips. As always, there's something here for every interest and for every level of human expertise.

If you'd like to share your own expert knowledge, just write it up and send it in. Put each item on a separate sheet of paper, put everything in one envelope, then send it to:

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Fireworks Extravaganza: Many readers were impressed with the fireworks program by Bob and David Snader in January's "Tips & Tricks." I recently met the Snaders in person, and we discussed the possibilities of doing something more with the fireworks theme. They took the challenge and produced one of their usual gems. So here's the "grand finale," courtesy of:
Bob & David Snader
Baltimore, MD

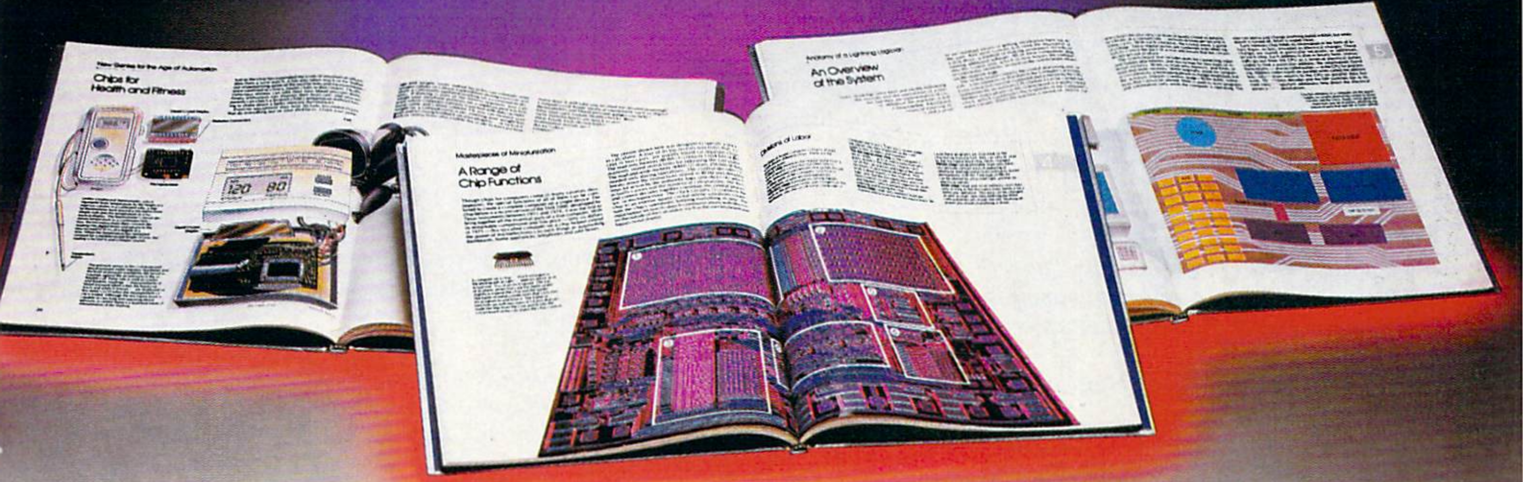
```
10 PRINT"[CLEAR,L. RED,DOWN2]
   FIREWORKS EXTRAVAGANZA-BOB & DAVE
   SNADER":POKE 53280,0
20 DIM L(39),P(39),A(16),B(16),C(16)
   :V=53248:S=54296:POKE V+33,0
   :POKE V+21,255
30 D=12288:FOR T=0 TO 38:READ Q,R
   :L(T)=Q:P(T)=R:NEXT:FOR T=D TO
   D+510:POKE T,0:NEXT
40 FOR T=0 TO 15:A(T)=(RND(0)*8)+1
   :B(T)=RND(0)*255:C(T)=(RND(0)*150)
   +50:NEXT
50 FOR T=0 TO 7:POKE 2040+T,192+T
   :POKE V+39+T,A(T):NEXT
   :POKE V+23,B(1):POKE V+29,B(1)
60 FOR T=0 TO 15:POKE V+T,C(T):NEXT
   :FOR B=D TO D+510 STEP 64:POKE S,15
   :POKE S,0
70 FOR E=0 TO RND(0)*2:FOR T=0 TO 38
   :POKE B+L(T),P(T):NEXT:NEXT:NEXT
   :FOR T=0 TO 200:NEXT
80 FOR T=0 TO 38:FOR B=D TO D+510
   STEP 64:POKE B+L(T),0:NEXT:NEXT
   :GOTO 40
90 DATA 19,40,16,17,22,16,13,130,25,
   131,10,41,28,40,15,7,17,192,7,108,
   6,30,8
100 DATA 240,4,68,9,97,11,12,12,128,
    14,2,1,131,0,3,2,128,18,56,20,56,
    21,64,23
110 DATA 4,24,129,26,2,27,6,29,192,31,
    68,34,68,30,8,32,32,37,198,33,16,
    35,16
120 DATA 40,130,36,16,38,16,43,130
```

Fuzzy Caterpillar: This program creates a most unusual "worm" on the 64-mode screen. To see him and control him, you must plug a joystick into Port 2. Note that all eight sprites are used to create one long, changing object. The program uses some interesting and unusual code to control the sprites and to do border checking.
Scott Glazer
Reno, NV

```
10 PRINT"[CLEAR,RVS,SPACE4]
   SCOTT GLAZER'S FUZZY CATERPILLAR
   [SPACE4]"
20 IF PEEK(65534)<>72 THEN PRINT"
   [DOWN]THIS ONLY WORKS IN 64 MODE!"
   :END
30 PRINT,,"[DOWN6] IT WILL",,,,
   " OBEY A",,,," JOYSTICK",,,,
   " IN PORT 2"
40 V=53248:FOR T=0 TO 7:POKE T+2040,13
   :POKE V+39+T,7:NEXT:R=V+21:X=104
   :Y=104
50 FOR T=832 TO 894:READ A:POKE T,A
   :NEXT
60 J=PEEK(56320):Y=Y+6*(((J AND
   1)=0)AND Y>55)-6*(((J AND 2)=0)AND
   Y<225)
70 X=X+8*(((J AND 4)=0)AND
   X>31)-8*(((J AND 8)=0)AND X<248)
80 P=-P*(P<7)-(P<7):POKE R,255-2^P
   :POKE V+2*P,X:POKE V+2*P+1,Y
   :POKE R,255:GOTO 60
81 DATA 001,255,128,015,255,240,031,
   255
```

Continued on pg. 108

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AMIGA Tips & Tricks

Compiled by Tim Jones

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***Faery Tale Adventure* Tips:** Be sure that you explore every building in Tambry before leaving to explore your new world. There are many items hidden away that may help you.

There are two ways to get treasure and items from a foe; defeat it in battle or immobolize it.

Never underestimate the power of being generous with peddlers and others while roaming the land. By taking the time to TALK, or give gifts, you could find your lot improving.

If you are having problems increasing your BRAVERY, take advantage of your "LONGER REACH" and use the graveyard fence as a deFENSE during the early stages of the game. It seems that the bad guys (with the exception of wraiths) don't know that they can fight back through the fence.

There are three ways to travel over water. One is to locate a raft and use it to navigate the waters of the Lake of Dreams. The second is to locate the seashell and call the Sea Turtle and the third is to gain possession of the Golden Lasso and locate the Magic Swan.

When using the Great Stone Rings, you can control your destination somewhat depending on the direction you face when you invoke its magic.

When facing the magical lady in her throne room, keep in mind that discussion may increase your chances of survival.

When you have defeated a wraith, be sure to search the remains. There is a chance that one of them may have an item that may be of use in your quest.

During the early stages of the game, it is best not to disable the musical themes. If your character faces danger, the change in the musical mood will give you enough advanced warning to allow you to prepare.

Graham Kinsey/Tim Jones
Boston, MA   Deltona, FL

***DeluxePaint II* Single Drive User Tip:** If you are like me and only have one drive on your system, there is a way to convince *DeluxePaint II* to allow you to save your drawings to your actual data disk. Don't boot your system from the *DeluxePaint* disk. Instead, boot from your Workbench and use the CLI to enter the following command:

```
ASSIGN DF1: RAM:
```

Now, place your *DeluxePaint* Key Disk into DF0: and go into the program from the CLI or from the Workbench. Now, whenever *DPaint* tries to access DF1: during a LOAD or SAVE, you won't get the SYSTEM REQUESTER asking you to insert volume DF1 and you can switch the LOAD/SAVE path to your actual data disk.

Jorge Dimitrius
Brooklyn, NY

[You could also assign DF1: to DF0:. Note that this won't work if DF1: is already attached to your system — taj]

ANSI Codes For Use In CLI Displays: As many of you are aware, the CLI windows are based on what is called the Console Device. Also, this Console Device adheres to standards of display set forth by the American National Standards Institute (ANSI). These are referred to as ANSI Standards. Here is a list of some of the codes that can be sent to the Console Device driver (via standard Type and Echo commands). In most cases, the commands are prefaced by a Command Sequence Identifier (CSI). This is usually an Escape character followed by an open bracket "[". If you wish to imbed any of these codes into a line of text, or text file, you will have to use an editor other than ED. MicroEMACS (on the EXTRAS disk) is good for this.

<CSI> = ESC "[" (the quotes indicate a literal character)

<CSI>0m	Reset All ANSI Parameters to Default
<CSI>1m	Set BOLD
<CSI>3m	Set ITALICS
<CSI>4m	Set UNDERLINE
<CSI>7m	Swap Foreground and Background
<CSI>30m	Set Foreground to Color 0
<CSI>31m	Set Foreground to Color 1
<CSI>32m	Set Foreground to Color 2
<CSI>33m	Set Foreground to Color 3
<CSI>40m	Set Background to Color 0
<CSI>41m	Set Background to Color 1
<CSI>42m	Set Background to Color 2
<CSI>43m	Set Background to Color 3

This is a very limited list, but it shows you the manner in which the Console responds to ANSI sequences. Also, you can compound any number of options into a single sequence to change more than one at a time, for example:

Continued on pg. 64



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Reviewed by Mark Cotone

Rush'n Attack/Yie Ar Kung-Fu



Carrying a fitting "Double Feature" tag, this could very well be the best one-two arcade combination to come along this year.

Computer: Commodore 64
Publisher: Konami
815 Mittel Drive
Wood Dale, IL 60191
Medium: Disk
Price: $25.95

Konami, one of the major forces in today's arcade halls, has recently adapted some of their explosive action for enjoyment on the Commodore home screen. *Rush'n Attack* and *Yie Ar Kung-Fu*, two popular coin-op titles that have swallowed more than their share of tokens and quarters over the past year, can now be challenged from the comfort of the family room. Both contests deal with fighting men up against unbelievable odds, both require a combination of quick reflexes and mental alertness to be conquered and both are now available in the same single-disk bargain package. Carrying a fitting "Double Feature" tag, this could very well be the best one-two arcade combination to come along this year.

Rush'n Attack takes the classic ladder-and-platform style contest and places it behind the well-guarded lines of an officially unnamed but easily identifiable U.S. enemy. Your mission, which might easily fall under the "suicidal" heading, requires you to penetrate miles into hostile enemy territory, enduring all sorts of offensive assaults and defensive ramparts, so that you can ultimately rescue a small group of American POW's trapped inside a heavily fortified prison camp.

The opposition is equipped with armored vehicles, bomber planes, killer canines, grenade launchers, mine fields, machine gunners, paratroopers, helicopters, and wave after wave of enemy infantry so proficient in the art of hand-to-hand combat, that even their touch spells death. On your side you have you. Alone. And you are equipped with . . . a knife. Hmmm. Who dealt these hands anyway?

Using your joystick, you direct your hero across a perilous screen that pans to reveal a terrain teeming with bloodthirsty soldiers. To call this game relentless would be akin to calling Schwarzenegger muscular. The opposition and obstacles just keep on coming. The brutal road to the captives is divided into four sections: Missile Base, Harbor, Bridge and Prison Camp. Aside from pausing to watch a short intermission that is played out between stages, the only other chance you'll get to stop for a breather is when your surrogate dies. Other than that, it's sprint, stab, duck, stab, jump, stab and stab some more. Your trigger finger had better be in top shape.

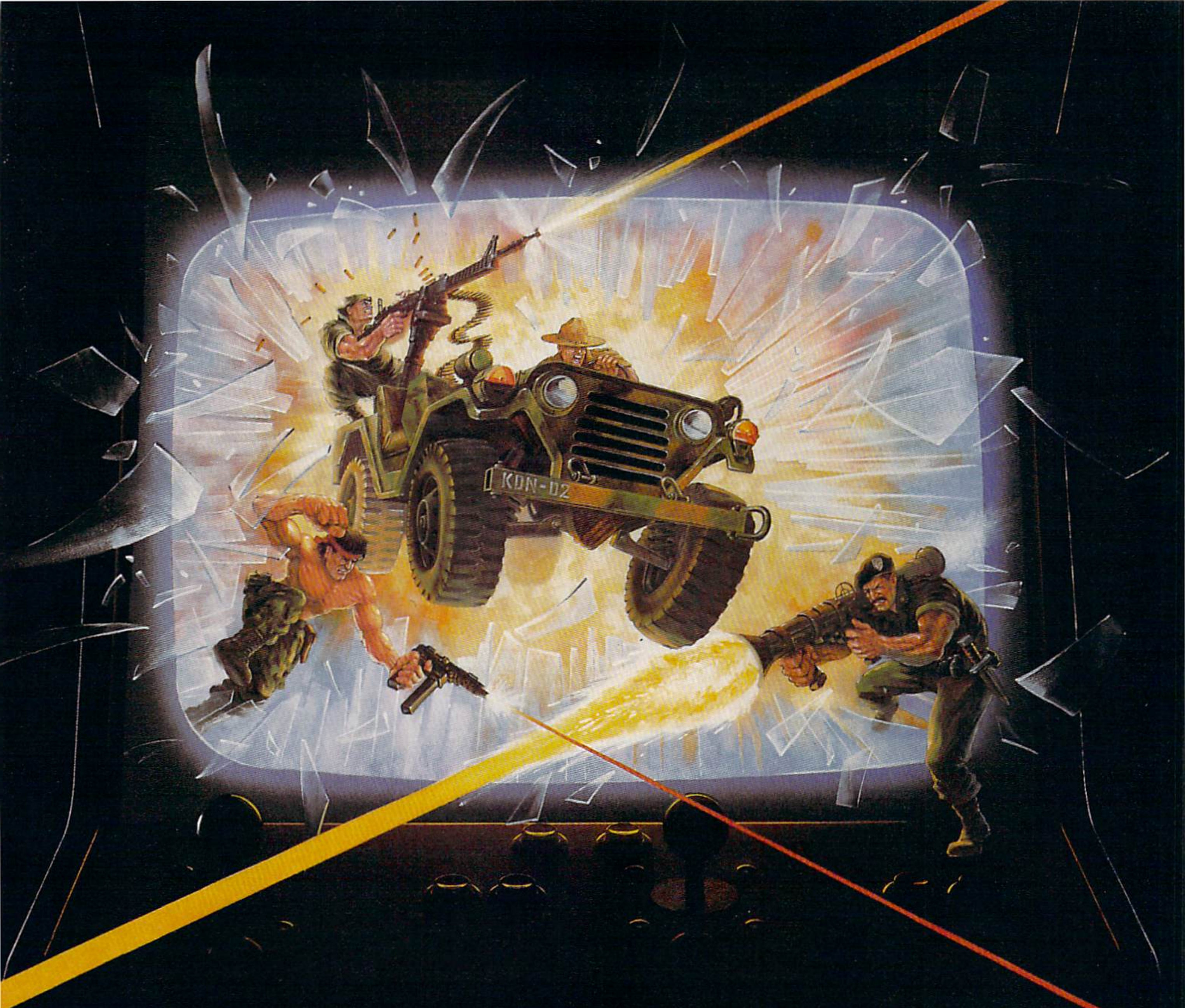
Each battlefield is given its own detailed look, with accurate building and landscape representations defining the locales. As different as these environments might appear, they're all built along the same framework, which consists of a three-tiered structure linked together by a series of connecting ladders. As your soldier moves along, the challenge comes in trying to avoid and subdue a wide assortment of mobile attackers, while simultaneously circumventing the various stationary pitfalls scattered about. What personalizes each stage is not a change in this tiered design, but rather a variation on the characteristics of the legions that swarm after your surrogate. The troops get tougher and wiser as the game progresses, and the player is burdened with the task of devising new ways to outwit and overrun his enemy.

But all is not as bleak as it seems. Your solo soldier is initially given five lives, with extra lives awarded at various scoring plateaus. There are also bonus weapons that can be collected any time your surrogate can give a special white-colored enemy soldier a terminal taste of his knife. These high-powered additions, like a flame thrower or grenade launcher, come with a very limited supply of ammo and are activated by a tap of the keyboard's space bar. With bullets flying and soldiers converging, this can be a tough control move to pull off. However, the extra destructive muscle is well worth the extra effort.

Rush'n Attack's graphics and animation are certainly up to snuff, with over a half dozen defined characters running around an often-congested screen with only an occasional trace of visual flickering. An audio backdrop helps to set the scene, mixing a rhythmic percussion accompaniment with the wartime sounds of gunshots, roaring engines and wailing sirens. Fast and unforgiving, this contest is a gratifying mix that will test your nerve and endurance. Best of all, it's only half the story.

With the glut of martial arts games currently available, we've all been exposed to computerized karate matches in one form or another. With *Yie Ar Kung-Fu*, Konami takes this proven theme and shifts it into a higher arcade gear. All the familiar elements, like one-on-one combat, multiple attack options and opponents of in-

Continued on pg. 60



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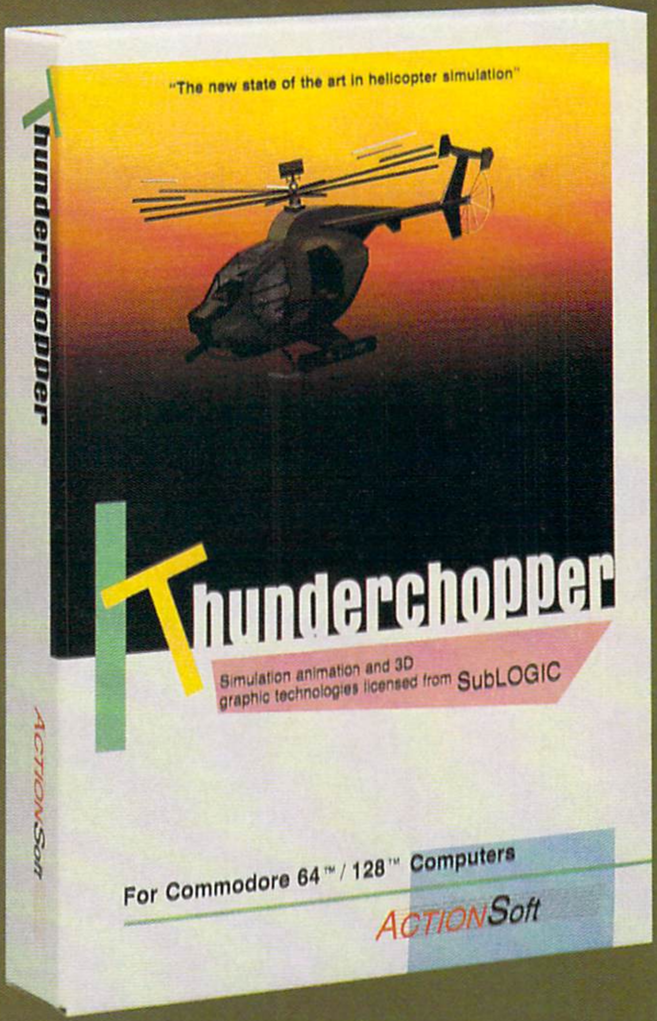
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C64 Screens shown. Other computer versions may vary.

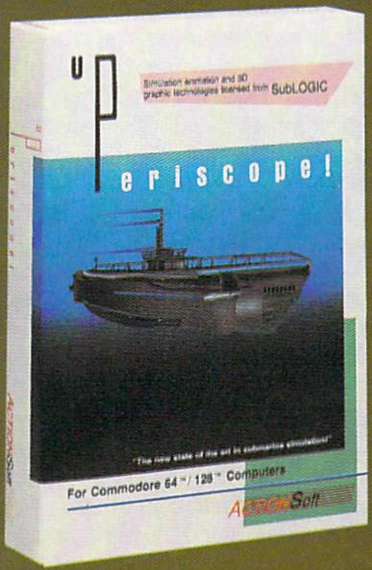






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ACTIONSoft

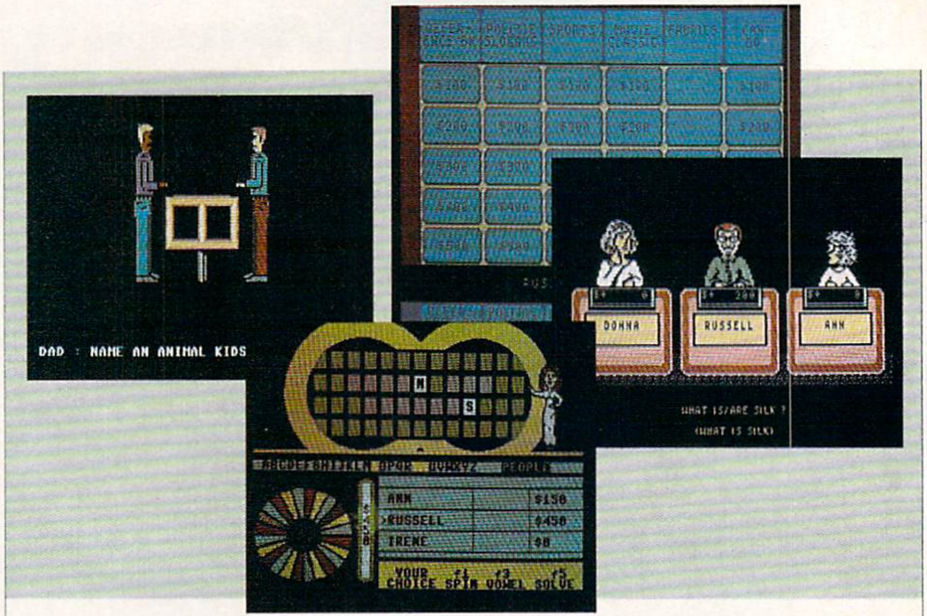
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201 WEST SPRINGFIELD AVENUE, SUITE 711
CHAMPAIGN, IL 61820 (217) 398-8388

Reviewed by Mark Cotone

Wheel of Fortune/ Family Feud/ Jeopardy

Computer: Commodore 64
Publisher: ShareData
7400 W. Detroit St.
Suite C170
Chandler, AZ 85226
Medium: Disk
Price: $12.99 each



How many times have you sat down to watch a television game show, and from the comfort of your recliner, marveled at how easily you could have defeated the whole bunch of smiling, nodding dolts who qualified to be contestants?

Well, stop boasting and hold onto your ego, for your proving ground has arrived. Thanks to ShareData, three of television's most popular game shows—"Wheel of Fortune," "Family Feud" and "Jeopardy"—have been scheduled to appear on your Commodore home screen. It's a software series that brings new meaning to the concept of viewer participation, for it lets the user compete against computer or friends in remarkable reproductions of the network hits. The tension, excitement and challenge have all been captured on disk to provide what promises to be an enjoyable, yet humbling experience.

Wheel of Fortune

Whether you tune into this show to test your smarts or just to see what delectable delight Vanna will be modeling, ShareData's rendition is geared to please. For those of you who only recently arrived on this planet, let me explain the game's premise. *Wheel of Fortune* is very similar to the old pencil and paper Hangman diversion. Three players, competing against each other, are presented with a series of blank squares clustered together to represent a group of hidden words. They then take turns guessing letters in the puzzle, trying to uncover the mystery phrase. If one chooses a letter not contained in the solution, play is passed on to the next contestant. If a puzzle letter is correctly deduced, it is displayed in its proper position, and the player is awarded a monetary point value, along with the chance to guess again. The dollar amount allotted for each accurate selection is determined by a variation of the common roulette wheel, which the players are required to spin before their turn. To keep things interesting, aside from cash amounts, this wheel is also spiced up with such avoidable spaces as "Bankrupt" and "Lose a Turn." Play continues until one person can guess the exact contents of the hidden phrase, whereupon he is awarded all the money he has amassed in that round. Three rounds are played, with the overall cash winner given a chance to go for a valuable prize in a solo bonus game.

Those familiar with the television version of this contest will find that it has survived the transition completely intact. The top half of the game screen is an exact copy of the show's four-tiered phrase board, where the hidden puzzle is displayed and framed between the pair of trademark yellow circles. The remaining portion of the screen houses the rest of the play elements, including a Used Letter Strip, where players can check on the guesses already made; an automatic scoreboard, where the contestants' names, current bank rolls and overall earnings are tallied; and a scaled-down computerized copy of the famous wheel itself, ready to whirl away with the tap of a button.

The program's puzzles are a diversified lot, ranging from city names and famous landmarks to poignant quotes and notable celebrities. No mention is made by the publisher concerning the number of puzzles held in inventory, but I've played at least three dozen four-round contests, and have yet to come across a repeat. To keep the matches competitive, three contestants must participate in each game. But if friends or family aren't around, the computer will gladly step in to provide a formidable foe.

Oh yes, and lest we forget, this game also has its familiar level of sex appeal. Although the First Lady of Letter Turning, Vanna White, need not fear for her job, this program employs its own vivacious female hostess who carries out the responsibilities of her real life counterpart. Decked out in a sleek, tight-fitting dress and matching pumps, this sultry redhead saunters across stage to flip and reveal the puzzle's letters with all the grace and style of a seasoned pro. Between walks, she can even be seen enthusiastically applauding each contestant's spins from the sidelines. Let's face it, it just wouldn't be the same without her.

The only part of this game that is missing (but not missed) is the tedious prize buying sessions, where the round's victor is given a chance to choose some goodies from a showcase of overpriced merchandise. No matter, that was the part of the show where you would check to see what was on the other channels anyway.

Family Feud

Undoubtedly, this game will always be remembered for the excessive pucker power of its original host, Richard Dawson. But behind this lip gloss remains an interesting and often surprising contest which tests the players' perception of the opinions, tendencies and ideals of everyday America.

Continued on pg. 114


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Reviewed by Russ Ceccola

Stationfall

Computer: Commodore 64
Publisher: Infocom
125 CambridgePark Drive
Cambridge, MA 02140
Medium: Disk
Price: $34.95

Have you ever wanted to explore a deserted space station like a typical adventure of the crew of that famous starship Enterprise? Do you think that you can handle all the excitement that the Stellar Patrol has to offer? Most importantly, does the possibility of saving the entire galaxy from virtual destruction appeal to you?

If so, *Stationfall*, the newest offering from Infocom's Steve Meretzky and sequel to his best-selling *Planetfall*, may just be the next game to catch your eye at the software store.

Stationfall takes place five years after your exploration of the doomed planet Resida in *Planetfall*. You've been promoted from Ensign Seventh Class to Lieutenant First Class. After your promotion, you thought that the Stellar Patrol would be more interesting; instead, you were stuck on the paperwork task force—a job worse than grotch cage cleaning. Your assignment for today is to fly over to Space Station Gamma Delta Gamma 777-G 59/59 Sector Alpha-Mu-79 to pick up a supply of Request for Stellar Patrol Issue Regulation Black Form Binders Request Form Forms. What you think is going to be a boring day turns into another adventure with the future of the galaxy at stake.

It's been almost four years since *Planetfall*'s release. The game was lauded as the "Best Adventure Game of 1983" by *InfoWorld* and Meretzky was named the "Best Software Designer of 1983" by *Video Review*. *Stationfall* even surpasses the brilliance of *Planetfall* and throws some uniquely Meretzky puzzles at your feet. In a recent interview, Steve admitted that *Stationfall* was late in coming, but explained his reasoning: "I took a few years to write the sequel because I didn't want to get burned out on the *Planetfall* universe. I had always wanted to write a sequel, but I wanted to wait until I had a reasonably good story line and good ideas for re-using Floyd and the *Planetfall* universe without rehashing things."

Although your original goal in *Stationfall* is to pick up those forms, the goal

> *Stationfall* easily ranks as Meretzky's best work and the most interesting story to appear in adventure format in a long while.

changes after you reach the space station. What you find at the station is unbelievable. No one is there but a super-intelligent robot named Plato, who likes to read poetry, an Arcturian balloon creature and an ostrich. Later you begin to realize what happened to all of the people as the machinery begins to go haywire and revolt against you. Eventually, even Floyd begins to act strangely. As you discover the true story behind the goings-on at the station, you realize you have little time to save yourself and the entire universe.

Floyd makes a return appearance in *Stationfall* as your beloved companion. His endearing charm and childish antics and humor have made the little robot a very popular character. Although he still hasn't surpassed his record of four successive paddleball hits, Floyd will capture the affection of any gamer. Meretzky explained how Floyd was created: "When I wrote *Planetfall*, I decided that there should be one character other than you, the player. Because there were so many characters with smaller roles in Infocom games that would essentially disappear after a puzzle was solved, none could really be that well-developed. Right away, I though that the other character should be a robot, yet I wanted to make him different from robots I had seen in movies and read about in books."

Stationfall is an all-text adventure game that relies heavily on the imagination of the player to construct the specific order of events in the story. Because there are no pictures, the descriptions given are very concise, and there is a lot of room to include more options in the space in memory that would have been given to graphics.

Meretzky went all out in *Stationfall* and stocked the game profusely with witty responses to otherwise standard player actions. It's this brand of humor that establishes Meretzky as the foremost humorist of interactive fiction. Typical of this humor is the following response that the game gives whenever Floyd is present and the copyright is evoked with either the SCRIPT or $VERSION command: "Floyd looks out at you, right through your computer screen. 'See that copyright notice?' he asks in a defiant tone. 'If anyone tries pirating this disk, they'll have Floyd to answer to.' "

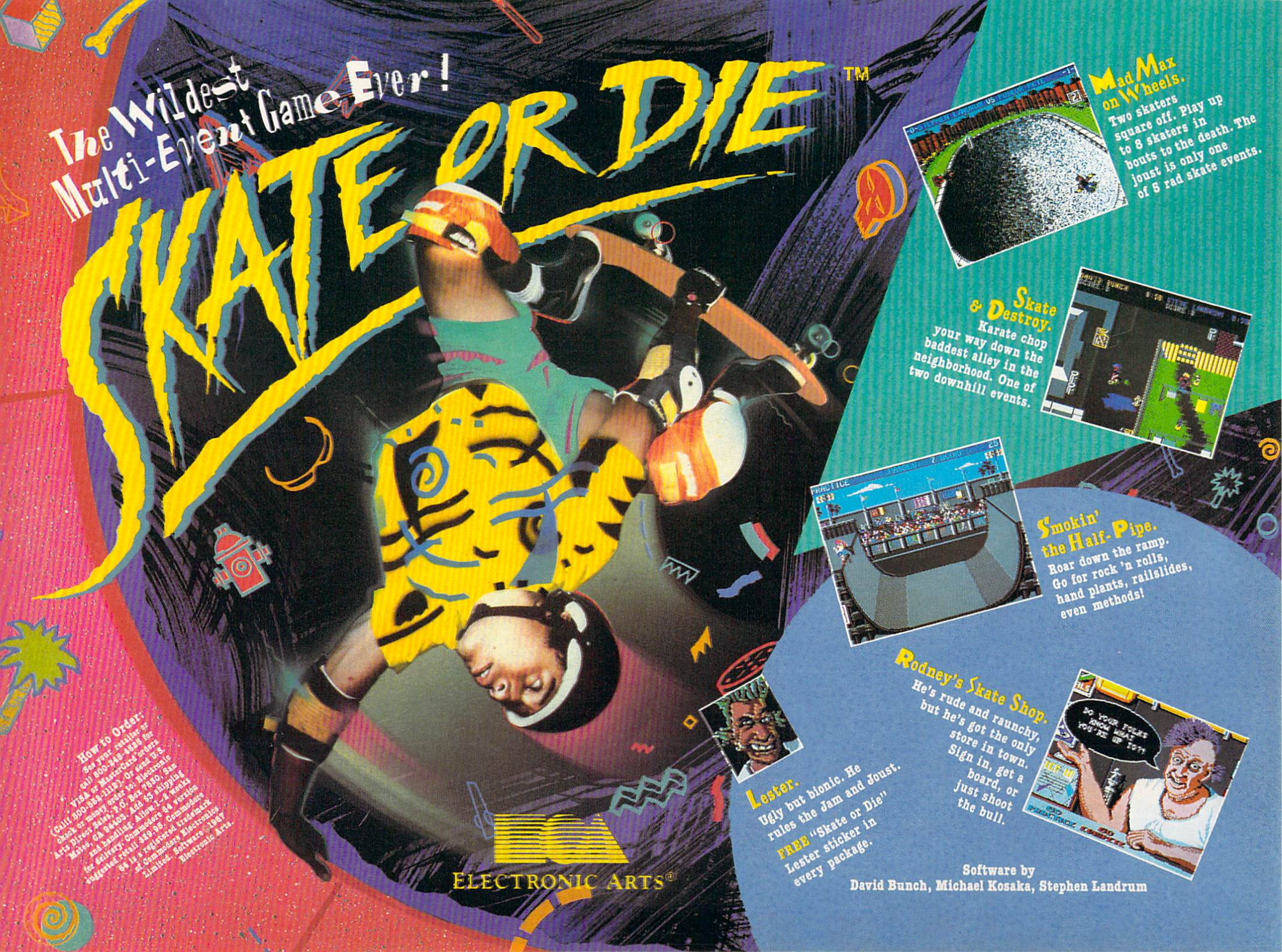
Also, if you're like me and try as many commands as possible, you will probably find many more quips. For example, I typed in ZORK and the computer responded with "Gesundheit!" *Stationfall* has so many more unusual responses that you might just want to devote an entire game to finding them. Here are a few commands you might want to try: KILL FLOYD, TICKLE FLOYD, CLEAN FLOOR, FOOTNOTE 11 and WHAT IS A GRUE.

Meretzky explains his laughable approach to interactive fiction: "I've always enjoyed comedy and humor in one sense or the other. One real source of humor is when games go into testing. All of a sudden, there are a lot of people playing the game and making suggestions. Human interaction always produces some funny things. It's easier to put in responses that are funny or snide rather than opening up an entire new set of responses with a serious one."

Plato is Floyd's new friend in *Planetfall* and serves a purpose that doesn't become apparent until later in the game. Although Meretzky says, "I didn't want to detract from Floyd—I still wanted him to be the major focus," Plato is a well-developed character who takes the serious approach, but if you read the text carefully, you'll find he enjoys playing with Floyd, especially "Hider-and-Seeker."

Like all other Infocom games, the packaging and inserts distinguish *Stationfall* from other adventures you might find in a software store. The game includes three Stellar Patrol Forms, a set of blueprints for the space station and a Stellar Patrol patch with your rank. I found the blueprints very helpful in mapping the space station, for it has nine levels and many rooms. It's easier to map each level separately than to try to connect them together. Make sure that you leave a lot of room for Level 5. Meretzky states, "I was inspired by the set of blueprints for the Enterprise from *Star Trek* that were

Continued on pg. 115



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SCIENTISTS A
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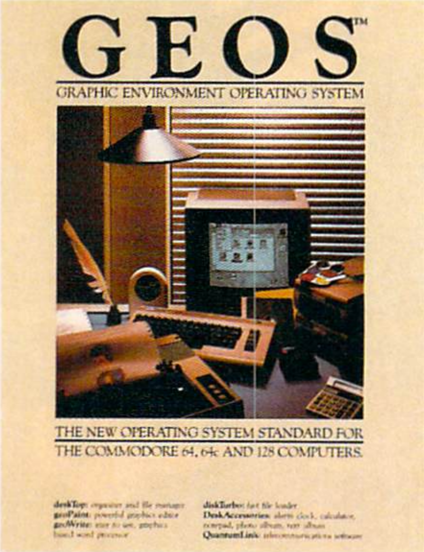
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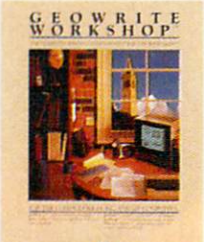
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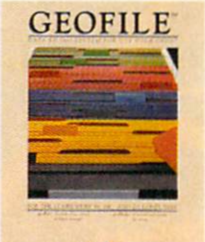
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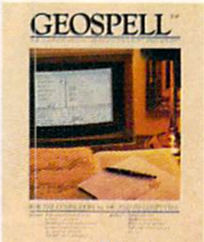
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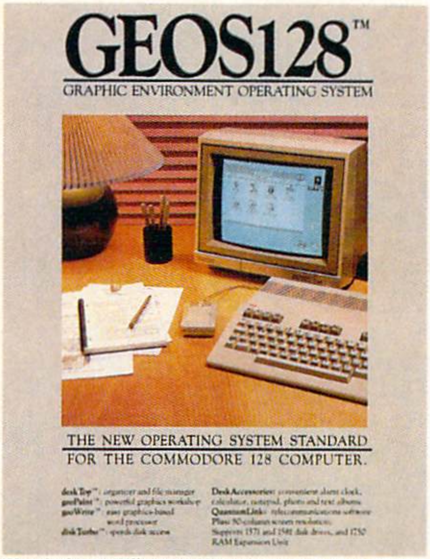
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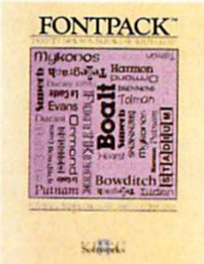
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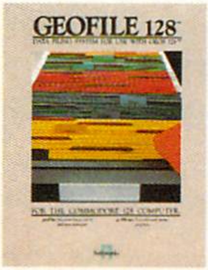
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Reviewed by Russ Ceccola

Dan Dare

Computer: Commodore 64
Publisher: Electronic Arts
1820 Gateway Dr.
San Mateo, CA 94404
Medium: Disk
Price: $19.95

When is a comic book not a comic book? When it gets transformed into a computer game, of course. At least this is the case for *Dan Dare*, a popular British comic. As the hero of the title, you must survive an adventure in which you ultimately save the earth from total destruction. In this new game from Electronic Arts' Amazing Software line, an excellent low-priced graphic adventure awaits your expertise.

Dan Dare sets before you a strong challenge that leads you from the surface of an asteroid heading straight for earth to an underground complex patrolled by Treens ready to fight. The story that brings you to the surface of the asteroid is a simple one. Dan Dare's arch enemy, Mekon, interrupts a television broadcast one evening to warn earthlings that they must meet his demands or the asteroid hurtling toward the earth will destroy it. As Dan Dare, you travel to the surface of the asteroid in your space ship Anastasia along with your friends Spaceman Albert Fitzwillian Digby and Professor Jocelyn Peabody and your faithful pet, Stripey. Upon splitting up on the asteroid, Digby and Professor Peabody are captured by Treens and imprisoned. You must release your friends and destroy the asteroid, thus saving the earth.

Even though the plot of *Dan Dare* may sound standard, the technique used in the design of the game is unique. You move the on-screen characterization of Dan Dare through the different passages and up and down ladders by using the joystick. However, at certain times, a message box pops up on the screen that tells you about something that you just walked over or touched.

As an example, when you are standing near the vines in the Above Ground part of the game, a box pops up with "Aha . . . a vine" in it. When you press the button and move the joystick, you find that you can TIE THE VINE or CUT THE VINE. As a hint, you'll have to do both to be successful in *Dan Dare*. There are many of these boxes that pop up during the game; they



The arcade-like action adventure captures the comic book version of the "Pilot of the Future."

keep the game interesting. These boxes are like cartoon dialogue bubbles and make *Dan Dare* almost like an interactive comic strip.

While Above Ground, you must ultimately find three entrances into the Prison Complex. These entrances are hatches that you must open. However, getting to the hatches may require you to fight Treen guards or find special objects. The most important object that you need is the torch, for it enables you to see in the darkness in the complex below.

The Prison Complex is much tougher to navigate than the passages and hatches in the immediate surface of the asteroid. There are many Treen guards, and you may actually have to fight some of them to get access cards. While Above Ground, you don't need to fight any guards—you can avoid them. In the complex, you need the cards to open doors to other areas and the vaults holding Peabody and Digby; therefore, get ready to throw some lefts and rights. After releasing Digby and Peabody, the action really gets tough.

Figuring out what to do with the giant industrial laser is an unusual puzzle. Once you figure this out, a door opens that takes you to Mekon. He is in a control dome, firing at Dan. You must control Dan so that he lobs grenades at Mekon's dome, destroying it and then runs through a secret passage to the Anastasia. I won't say any more about the last two parts, for that would be spoiling the game.

A few peculiarities that make *Dan Dare* even more of a challenge occur in the first two parts of the game. There are three entrances from the surface to the complex, however, you only need to find one to play the game to the end. The catch is that only by finding all three will you rescue both friends and destroy Mekon. So, you should find all three entrances for the full enjoyment of the game and its finale.

In the complex, there are many ladders that end halfway to the ground and girders usable as bridges that stop in mid-air. Finding the correct way to navigate around these dead ends is the key to success in the Prison Complex. The complex is many levels deep, and you'll need to remember where all the open doors and ladders lead. For this reason, *Dan Dare* will keep you occupied for a long time. You can't map the complex or asteroid surface because of the clock that is constantly running. Only repeated play will familiarize you with the many screens involved in the game. Finding the correct objects for a particular puzzle is another skill you must develop. The puzzles are fairly simple if you can find what you need.

The graphics and music in *Dan Dare* are attractive enough to hold their own in an arcade. The detail in animation is incredible, especially in the case of Stripey. He does somersaults and rolls himself into a ball and makes very unusual facial expressions. Dan Dare himself is given an authoritative look and hat that hangs low over his eyes. The music and sound effects are original and consist of a catchy game theme and realistic versions of punches and explosions.

The only complaint I have about *Dan Dare* is the way that you fight the Treens. You must hold the joystick button and repeatedly move the joystick either diagonally up for high punches or diagonally down for low punches. It's very difficult to maintain a perfectly diagonal direction on any joystick more than a few times. The designers should have made the directions to move the joystick simply up and down. It takes practice to learn how to punch effectively, losing little energy of your own and decreasing the energy of the

Continued on pg. 85

Reviewed by Scott A. May

Telegames Vol. 1-3

Computer: Commodore 64
Publisher: S&S Software
P.O. Box 647
Mexico, MO 65265
Medium: Disk
Price: $9.95 per volume

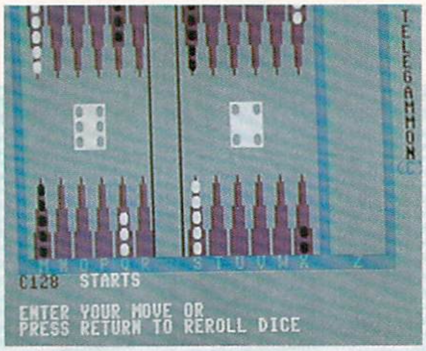
One of the fastest-growing segments in the home computer market is telecommunications. Modems are becoming less mysterious and more affordable for nearly all computer owners. Pay services—such as Q-Link and CompuServe—and public bulletin board systems are accessed more than ever before.

Sooner or later, most users will ask what to do after the newness wears off. Let's face it—you can only chat with friends, read stock market reports, and up/download programs so many times before the thrill is gone. It's only a matter of time before this electronic window to the world becomes clouded with repetition. User sophistication can, it seems, breed boredom.

S&S Software is one of the few companies with insight into the "telecomputing gap." *Telegames Vol. 1-3* delivers a technological link between popular board games and the new age of telecommunications. These three packages (seven games in all) for the 64 allow players to engage in friendly contests of skill and luck via modem. The concept itself is not new. But the low retail price and quality of design make *Telegames* a perfect choice for those suffering from modem fatigue.

Each volume in this collection contains two disks (one for each player). Although the games were designed to be used with a modem, they can also be enjoyed by one or two players on a single computer. To allow long-distance interaction, each game contains its own small terminal program, set for 300 baud/full duplex. Modems supported by *Telegames* include: 1650, 1660, 1670 compatibles, Volks 6480 and most Hayes compatibles.

Setting up a game is done by first establishing a voice connection. Switching to terminal mode—the start of a game—is initiated by one player following simple on-screen prompts. A one-line scrolling text window handles keyboard commands during a game and also provides what the



The games were designed to be used with a modem or a single computer.

designers call "Constant Chat." This feature allows both players to freely communicate (via the keyboard) at any point during the game. On-screen instructions are included for each game in the series.

Telegames 1 features three traditional board games—chess, backgammon and checkers. TeleChess assumes both sides are familiar with this classic two-player strategy contest. Courtesy commands allow players to take back moves, restart the game and save/load games in progress. Another handy feature is the ability to produce a hardcopy printout of moves.

TeleChess utilizes standard letter/number combinations that correspond to columns/rows on the game board. The program will allow illegal moves, so mutual honesty is the *only* policy. Likewise, both players must agree with whether checkmate has occurred. Captured pieces are displayed on each side of the board. The graphics are clean and well drawn.

TeleGammon is a slickly-programmed game for two players. Because backgammon can be confusing for the beginner, complete on-screen instructions (with examples and illustrations) are included.

The TeleGammon game board and playing pieces (called "stones") are nicely detailed and feature some fine spot animation. The Constant Chat feature is particularly helpful here, allowing experienced players to "talk" a novice through the first few games. This fast-moving game is sure to become a favorite.

The final game on this disk, TeleCheck, is a simple rendition of the classic cracker-barrel contest. The basic structure remains intact, including features like automatic "king-ing." A perfect game for both youngsters and the young at heart.

Telegames 2 features two more contemporary contests. The first, TeleCon4, is a two-player game played on a vertical board consisting of six columns sectioned into rows. Players take turns stacking tokens in each column, building from the bottom row. The object is to connect four tokens in a horizontal, vertical or diagonal line. The main strategy of this deceptively simple game is to spoil your opponent's moves without sacrificing your own.

TeleDice, based on the popular dice game Yahtzee, is a very entertaining game of luck for one to four players. Using five electronic dice, each player is allowed three "rolls" to obtain special number combinations. The final roll is tallied and entered on a score card divided into different categories. These include single number scores (1-6), three or four of a kind, straights, full house and the ultimate: five of a kind. When (and if) all categories are filled, the highest score wins. Great graphics and animation help make this a perfect "tele-party" game.

The last disk, *Telegames 3*, is perhaps the best in the series. Its main attraction is TeleShip, undoubtedly the best version of Battleship ever designed for the 64.

Played alone against a cunning computer challenger, TeleShip is great. Against another player, however, the game really comes to life. Each side sets up by hiding five ships of various size on the game grid. Players then take turns firing single shots—or a salvo—in the dark, hoping to land a direct hit. The first to sink all five ships wins the game.

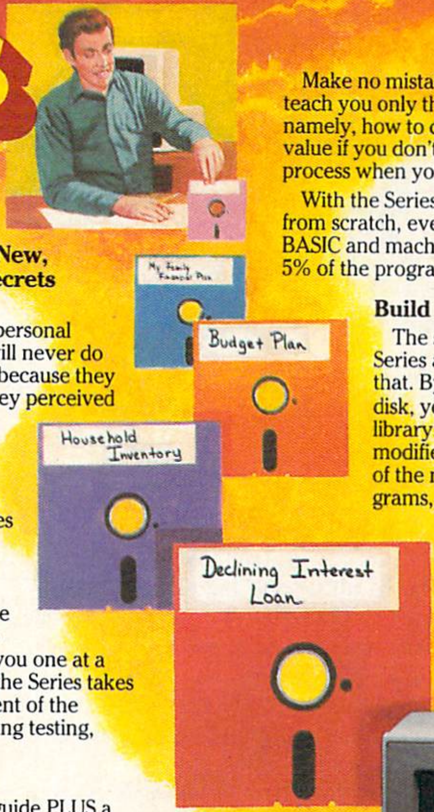
TeleShip is highlighted by two game screens (incoming and outgoing volleys), detailed graphics and explosive sound effects. This game is good enough to tie up phone lines for hours at a time.

Telegames 3 also features TeleMatch, offering three variations of the memory game concentration. This two-player version can be played by matching shapes, color or *sounds*. Each player takes turns uncovering two cards on the game board, making a mental note of the image or sound hidden there. The most challenging play mode is matching the often hilarious sound effects. A lot of work went into this game, and it shows.

Overall, these initial offerings by S&S Software are truly inspired. The market is definitely hungry for new types of telecommunications software, especially of this caliber. Each disk in the *Telegames* series should prove an instant hit with modem users everywhere.

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Reviewed by Graham Kinsey

DigiPaint

Computer: Amiga
Publisher: NewTek
115 W. Crane St.
Topeka, KS 66603
Price: $59.95



DigiPaint's strength is in the manipulation of colors and shades.

DigiView, the digitizer by NewTek, was the first product to allow users to take advantage of the Amiga's Hold and Modify (HAM) mode. Being able to digitize something in HAM is nice, but what if you don't own a camera? Or what if the only place that the image exists is in your imagination? Well the people at NewTek have come through again. This time they have come out with *DigiPaint*, a painting program that works not in the normal Amiga graphics modes, but is specially designed to operate in HAM mode.

Before I talk about *DigiPaint*, let's review how HAM mode really works, for you need to understand HAM so that you can grasp its limitations. The easy part of HAM is this: you can work either in 320 X 200 or 320 X 400 pixel resolution (this is interlaced HAM mode). The other easy part is that there are normally four bit planes used for HAM, which allow you to use up to 16 different colors (of the possible 4096 colors available).

Here's the confusing part. There are two more bitplanes in HAM mode. These perform the magic. If both of these planes hold zero bits, then the pixel is left unmolested, and the color that is displayed is determined solely by the four other bits. However, if either (or both) of the last two bit planes contain one bit, then the color that would have normally been selected will be modified. Depending upon which of the last two bits are set, either the colors' red, green or blue value will be thrown out and replaced with the corresponding color from the pixel to the present pixel's immediate left. This is why HAM can at any instant display colors that are not present in any of the 16 color registers that are available at the time.

What does all this red, green and blue bit information concerning HAM mean? Well, the problem is that when you want to change colors from one pixel to the next it is not always possible to just use any of the 4096 colors at any time. Since you can only change one of the three RGB values at a time, it may be necessary to take up to three pixels to change from one color to another.

The solution to the problems associated with color transition involves a lot of advanced calculation and planning. Subtle changes in the 16-color palette can make a big difference in transition smoothness. HAM painting programs therefore require much more advanced computational algorithms than standard Amiga painting programs.

When you first boot-up *DigiPaint* you will notice that it has an interesting user interface. *DigiPaint* devotes a separate screen solely to user options and information. The main painting area is displayed behind this smaller screen, referred to as the "Toolbox." This area, which you can drag up or down, contains information and selectable options. Due to the nature of Amiga screens, only the portion of the painting area that is above the Toolbox will be displayed. You will not see anything below it, only a black void.

On the extreme left are the colors that currently occupy the 16 color registers that can be used in HAM mode. You may use any of these without worrying about HAM color transitions. (The *DigiPaint* manual refers to the HAM color transition side effect as "fringing.") Next to the 16-color palette are four large colored boxes. The one on the extreme left displays the current color selection. This box is quite large, making it much easier to observe the true color selected. The other three colored boxes show colors that are somehow related to the current color. The left box shows 256 different colors that vary in green and blue components, but have the same level of red as the current color. The center and right boxes each show 256 more colors with the same level of green and blue, respectively.

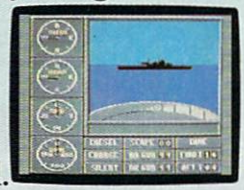
Next to these boxes are three sliding (proportional) gadgets. These sliders display numbers corresponding to the red, green and blue values of the current color By moving these sliders, you can instantly select any of the possible 4096 colors. Unlike most proportional gadgets, these three have colors occupying each possible position that each gadget can occupy. These background colors represent colors that can be selected by just moving the corresponding gadget on top of one of these background colors. Therefore, these 48 colors (16 colors times three sliding gadgets) represent all the colors that require only one pixel to perform a transition from the current color.

Continued on pg. 86

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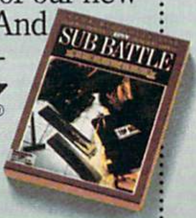
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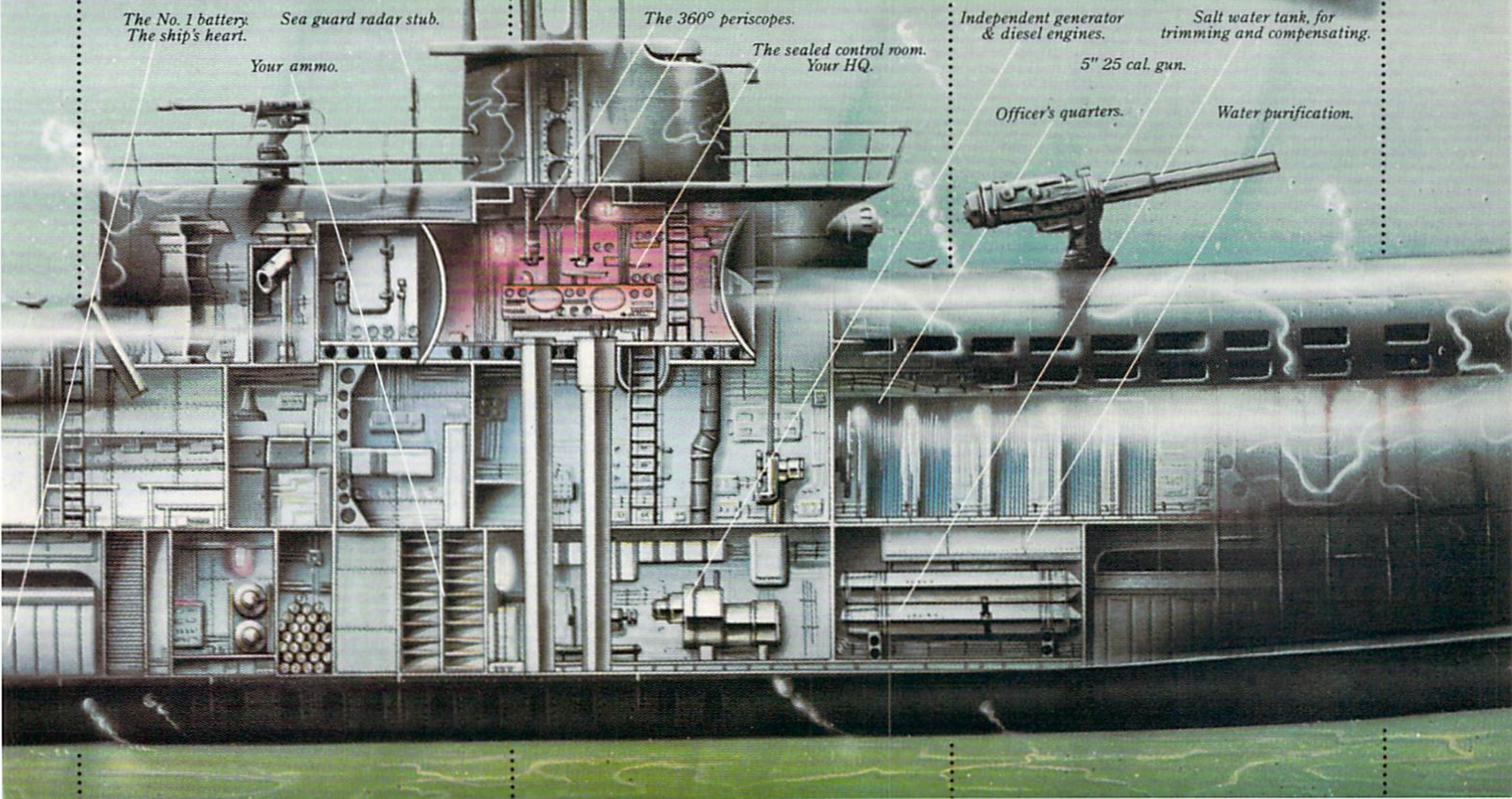
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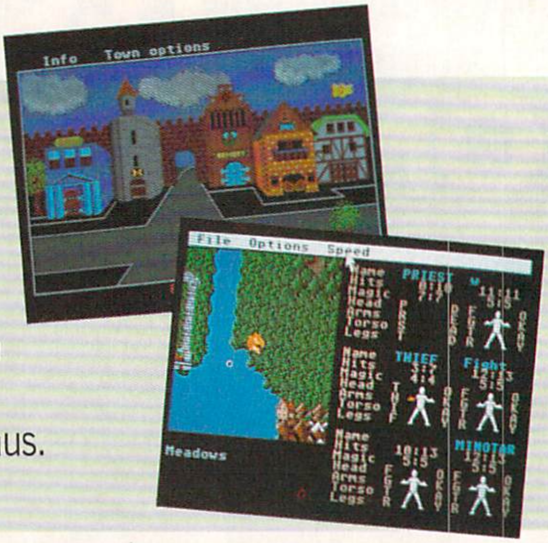
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Reviewed by Jeffery Scott Hall

Phantasie I and III

Computer: Amiga
Publisher: Strategic Simulations, Inc
1046 N. Rengstorff Avenue
Mountain View, CA 94043
Price: $39.95 each



These are classic ''dungeons and dragons''-type games, the main objective of which is to defeat the powerful Nikademus.

Phantasie is a series of multiple-character role-playing games from Strategic Simulations, Inc. These are classic "dungeons and dragons"-type games, the main objective of which is to defeat the powerful Nikademus, who is one bad dude! Only *Phantasie I* and *III* have been ported over to the Amiga.

Phantasie I

The object of *Phantasie I* is to free the isle of Gelnor from Nikademus' evil power. You must form a party to go and explore the isle, but be forewarned, it won't be easy. You begin in a town with five buildings displayed while a character walks back and forth on the street. To select a building, click the left mouse button on its door. Once selected, you will have a special menu for the building you clicked on. To use this menu, hold the right mouse button while scrolling through the options. All buildings and menu options are described in the manual.

Your party will have to map out (by simply moving around your screen) the isle of Gelnor, and you will need to explore the many dungeons you encounter. While your party is exploring, you will meet many evil monsters (80 different monsters in all). Some of the monsters will be friendly, and some evil. The monsters' strength will vary: Giant Ants are easy to kill, for example, while Black Knights are very strong and powerful. When there is an encounter, you will have a different set of menus from which you choose what you want to do—fight, threaten, greet monsters, beg for mercy or flee. If you choose to fight, you will be presented with a battle requester. From the requester, you click the left mouse button on the character you want. Once the character has been chosen, you are presented with another requester from which you choose a battle option. These options are thrust, slash, lunge, attack, parry or cast spell. If your party has successfully defeated the monsters, you will find some gold and weapons (the stronger the monsters, the more gold and better weapons you will find), and once your party has entered a town, you may distribute the weapons to different members of the party.

One note of caution: the insert card that came with *Phantasie I is not* correct, and it fails to explain many things. When you first un-box *Phantasie*, you will need to make a backup copy. The program is *not* copy protected, so just use the standard Workbench copy format. Now use your backup copy instead of the master disk. You will also need to format a blank disk or use an already-formatted disk to back-up your characters. There is a minor programmer's mistake with *Phantasie*. Those of you who do not understand the CLI might find it difficult to access the *Phantasie* Utility Program. To access this utility you will need to do the following: When asked for Workbench, insert your backup *Phantasie* disk. Just after inserting the disk, hold down CTRL-D and keep holding it down until you see BREAK CLI and get a 1> prompt. If this did not happen, leave the disk in the drive, re-boot and try again. Now, type BACKUP and press RETURN.

Now a window should open which has some options on it. Select the option you want by clicking the left mouse button on it and follow the directions. Remember, when it asks for the *Phantasie* game disk, you should insert the backup you made instead. That's it, you're done!

I have several complaints about the game. The major one is the time required to achieve a certain level. There are twenty levels in all for which to build your character. The first ten levels go fairly fast (but not at lightning speed mind you). For example, I have a character called Vince who is a level thirteen ranger. In order for him to move up to level fourteen, he will need 1,183,932 experience points (yes, you read it right; that's one million). This process takes forever, even when you can battle the high level monsters. I do not know why every adventure game insists on such a high amount for you to move from level to level! Wouldn't you get bored if it took you two to three weeks (about 10-20 hours of play) just to advance to the next level?

I also had a complaint about the dungeon save routine. When you exit a dungeon, you are asked if you wish to save the dungeon map. Sounds good, right? Wrong! The dungeon save routine will only save one dungeon map. So, if you want to save a map of another dungeon, any other dungeon map you have saved will be erased! One last complaint is about the use of a window while the party is crossing an ocean or river. The window displays a listing of all party members and tells whether or not a member has taken any damage. I find it quite frustrating, because every time you move one space, the window pops up.

Summary

Phantasie I combines good graphics, sound and requesters to make an interesting game. If you don't mind the slow pace necessary to advance your character and enjoy the encounters with the monsters and exploring dungeons, I would recommend *Phantasie I*.

Phantasie I Hints

When you begin a game and want to create a party of adventurers, include the following:

Two Fighters—Humans and Lizard

Continued on pg. 111

Reviewed by Gary V. Fields

LexCheck

Computer: Amiga
Publisher: CDA (Complete Data Automation, Inc.)
P.O. Box 1052
Yreka, CA 96067
Price: $42.95

LexCheck is a fast, mouse-driven spelling check program which works with most Amiga word processors on the market, including the Workbench's Notepad.

The program is very simple to use and will work with either the Amiga's default or interlace screen. All *LexCheck*'s commands can be issued using the keyboard, but the intuitive mouse action allows even the neophyte to use the program without once looking at the manual. Speaking of manuals, *LexCheck*'s is about as small as you'll ever see without aid of a magnifying glass. It is a 12-page booklet which even a fifth grader could read and understand in under a quarter of an hour. It describes each of *LexCheck*'s options in straight English, and includes a one-page quick reference card.

The two main options let you either check the spelling of an entire document or look up a particular word.

Option one, Check Document, can only be performed after the file has been saved to disk. When you choose this option you are asked if the file was created by either *Textcraft*, *Scribble!*, or Notepad or is simply a straight ASCII text file. Because only two word processors are mentioned by name, I feared *LexCheck* would work only with them. Those fears were unfounded. In testing, I had the program check and correct the spelling of files created with *Vizawrite*, *WordPerfect* and *ProWrite*, and it handled them all without a hitch. *[**Editor's Note:** The most recent update includes support of both* ProWrite *and* Vizawrite.*]* It even checked and corrected documents (not pages) created by the desktop publishing program *PageSetter*'s editor. The only time it had a problem with a file was when graphics were mixed with the text—while it could check and correct spelling errors, it could not resave the documents correctly. The solution I found for checking documents created with graphic-capable word processors (e.g., *ProWrite*) was to check them before graphics were added.

> Because only two word processors are mentioned by name, I feared *LexCheck* would work only with them. Those fears were unfounded.

To check a document you select "Check File" from the pull-down project menu. Next a file requester window opens in the middle of the screen listing files stored on the disk. As the speller works, the screen displays where in the alphabet the search is currently working. This visual reassurance that the program is doing what you intended is welcome for both novice and veteran users. Once the document has been loaded and checked for spelling, a menu of options appears. Now you can either return to the main menu, list all the words *LexCheck* did not recognize in the file or begin to correct the spelling.

LexCheck shows its real power and friendliness when you decide to correct the spelling of words in a file. The program shows the entire sentence in which the offending word was found, plus the 28 words which most closely resemble the word in question. You can now either click on one of the displayed words, or scroll through the 100,000-word list until you find the word you intended and have it replace the word *LexCheck* found suspect. Or you can type a correction from the keyboard.

On the other hand, if the program found a word (perhaps a person's name) which you know is correctly spelled, you can accept that spelling and continue or add that word to *LexCheck*'s list of words so it will recognize it in future documents.

Once you've finished, *LexCheck* will automatically save the corrected document to the same directory using the original filename. But just in case you made some changes by mistake, the original file is preserved and renamed with the extension ".bak" added.

The second main option lets you look up specific words while you are writing a document. Because *LexCheck* was designed to work simultaneously with other programs in the Amiga's memory, switching between it and your word processor is as simple as clicking on the front and back gadgets.

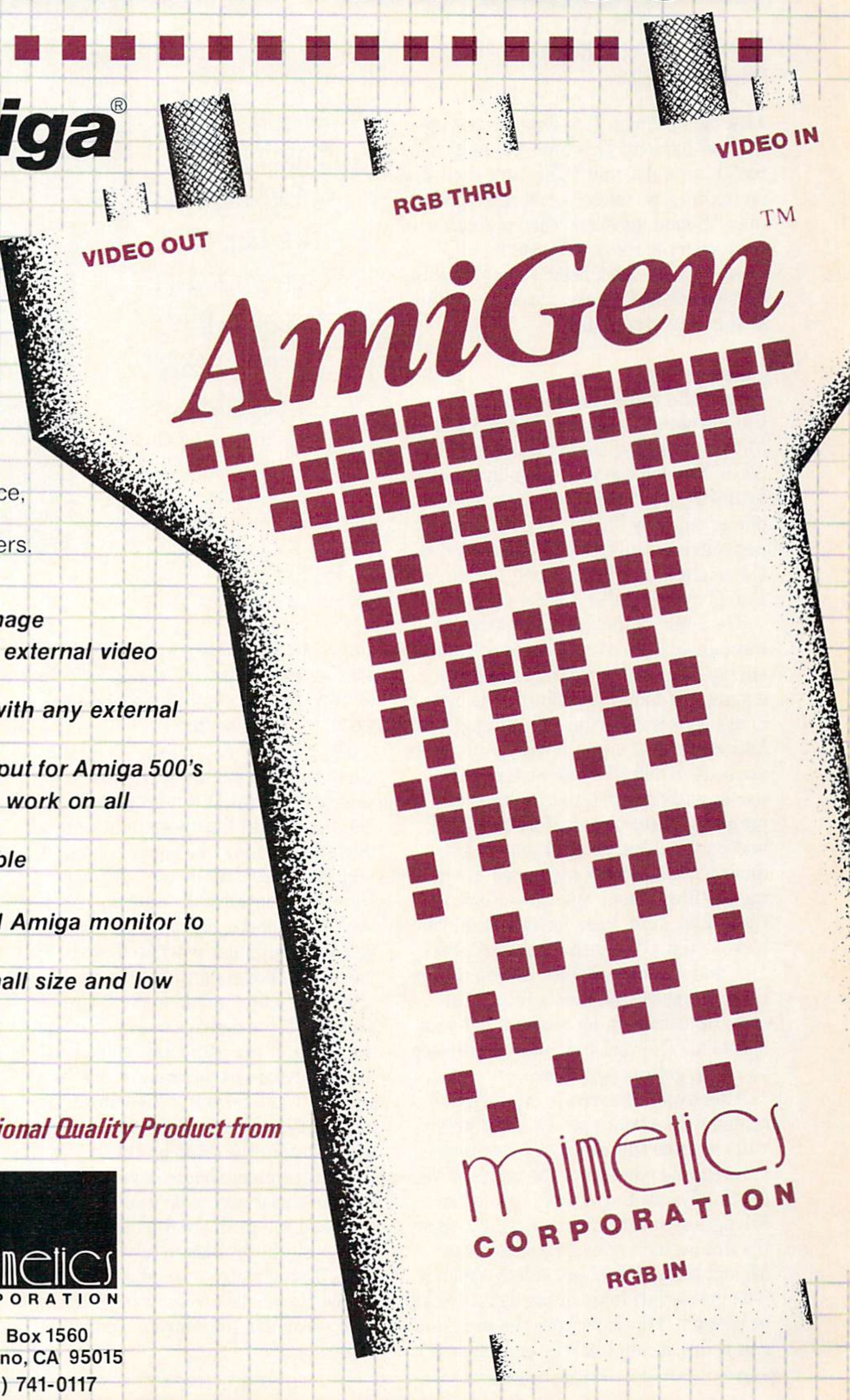
Most of us judge spelling aids by size. The theory being that the ones with the most words are better. That isn't necessarily true since size is often paid for with loss of speed. So the key to happiness with a spell check program is not so much the number of words it contains, but whether it contains the words you need and can get to them quickly. *LexCheck* passes the test. It is large *and* fast. Its 100,000-word list contains everything from "abaca" to "zymurgy" (look it up) and can check an entire file in less than a minute. If that isn't fast enough for you, because the program is not copy protected, you can (providing you have enough memory) move *LexCheck* to either RAM or hard disk.

LexCheck does not accommodate wild card searches. For instance, if you want to find out how to spell "abandonment" by looking up all the words that end with "onment," you can't do it here. Neither can you search using wild cards in the middle of the word pattern like "gr??n" to find "green." However, *LexCheck* uses an implied pattern search using the beginning characters of a word. For example, if you aren't sure of the spelling of "impoliteness," you could step the program through a search by using "im," "imp," "impo," etc. Or you could simply use "im" and scroll through the spell list until you see the word. In fact, you can scroll through the program's entire list of words by clicking on the scroll bars if you want.

On the whole, I found *LexCheck* an excellent spelling checker. It is simple to use, has a healthy-sized word list and is fast. Its command structure is logical, and the program seems to be bulletproof. In my testing the program, it never failed to perform properly (there is nothing worse than a productivity program that decides to belly up halfway through a project). The only curiosity I encountered, was the location of the HELP command. Rather than use the Amiga's dedicated HELP key to summon the program's two help screens, the user must either access them via the mouse or by pressing both the AMIGA key and the letter "H." I can't imagine why that selection was used instead of the HELP key. Regardless, it works and the help screens are there if you need them. With such an easy-to-use program, the screens will rarely be used.

One closing remark, in the "for your information" category: *LexCheck* gets its name from the Greek word "lexis," which means "a word." *LexCheck* lives up to its name—it checks words very well. ■

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Reviewed by Jeffery Scott Hall

Karate Kid II

Computer: Amiga
Publisher: Microdeal Ltd.
Box 68
St. Austell, Cornwall
PL25 4YB
United Kingdom
Price: $39.95

"Daniel san! This fight is not tournament! This time, the fight is for real! Live or die, man? This time there are no trophies, no referees, just man against man." Sound familiar? Then perhaps you have seen the movie "Karate Kid II"? Strap on your black belts, karate fans! Because from Microdeal comes *Karate Kid II*, the computer game.

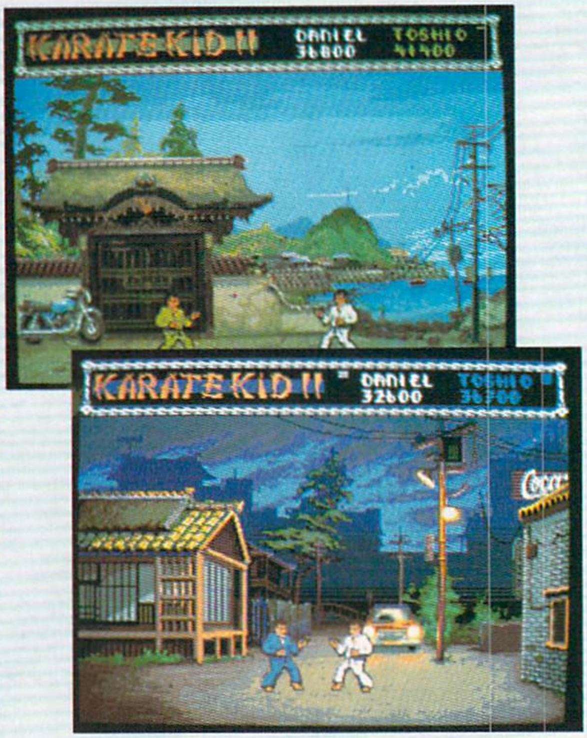
Game Play

Once the game has finished loading, you are shown a picture of Daniel and Miyagi while the theme "Glory of Love" plays. You can choose a one-player game by having a joystick in port two, or a two-player game by having a joystick in both ports. In a one-player game, you control Daniel; in a two-player game, one controls Daniel and the other Daniel's enemy.

The object of the game is to make it through all eleven screens and defeat each enemy Daniel encounters. To defeat an enemy, you must score hits on the opponent's body until he has zero strength left. You won't be at a loss for moves, for there are sixteen different moves in all! The moves without fire button pressed are: jump, high punch, move forward, kneel and punch, duck, forward somersault, move back, and turn and punch. By pressing the fire button, you can perform a flying kick, high kick, forward kick, low kick, sweep, backward somersault, back kick and roundhouse kick. As you can see, there are many combinations you can come up with in order to knock out your opponent. The variety of moves will keep you from getting bored, too.

After every two screens, you are presented with a bonus screen. This screen will either be the famous fly-catching or ice-breaking scene from the movie. If you get the fly-catching screen, you control Miyagi's arm with the joystick, and press the fire button to close the chopsticks Miyagi holds. The object of this screen is (you guessed it) to catch the fly as quickly as possible. This is perhaps the most difficult bonus screen I have ever seen on a game, but you must not get frustrated. Just remember, it took Miyagi forty years to catch his first fly. But if that doesn't work, try a fly swatter!

You control Miyagi's arm holding the chopsticks. The object of this screen is to catch the fly as quickly as possible.



The other bonus screen is the ice-breaking scene from the movie. In this scene, you control Daniel's concentration and also his arm. In the upper right corner is the famous drum which you must spin very fast (the faster it spins, the harder Daniel concentrates) by moving your joystick in a circular motion, once you think you are ready, push your fire button. This will cause Daniel's arm to let loose with a karate chop that would make Bruce Lee jealous. This is perhaps one of the worst things about the game. It is ridiculous how hard and fast you must move your joystick. I tore up one of my famous ten-million-shot Epyx joysticks while I was trying to spin the drum on this screen. The programmer should have come up with an easier way to do this. He could have had you push the fire button rapidly, then push the joystick in any direction to swing Daniel's arm instead of the way it is now. Remember, when you get to the final encounter, concentrate, Daniel san, concentrate!

An Overall View

Karate Kid II combines good graphics, sound, music and speech to make a worthwhile game. The opponents you will encounter get progressively tougher and smarter. Each of the eleven backdrop screens is very nicely done. This is one karate game that is sure to keep you coming back for more.

Hints

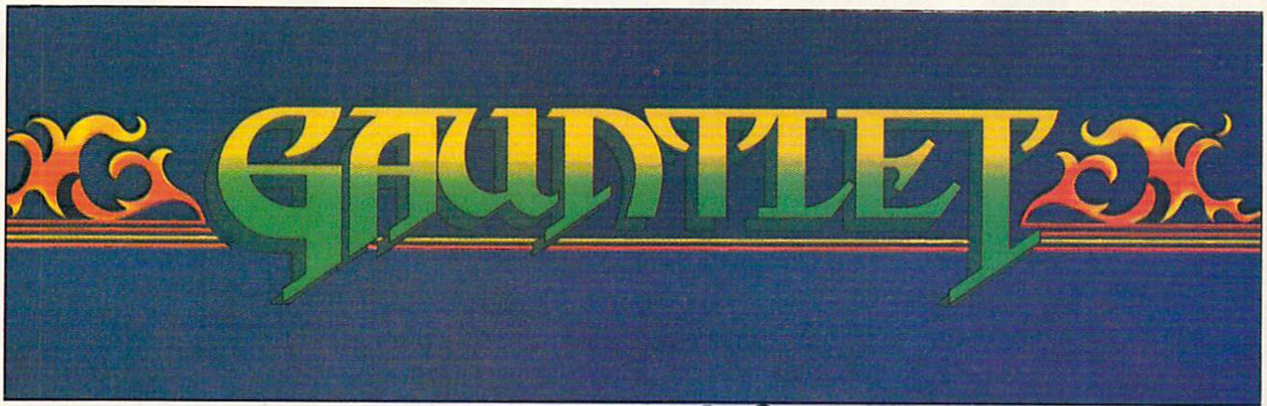
Try to back your opponent into a corner (but make sure it's not the other way around), and low kick him time after time. This will work if executed properly and will cause your opponent to lose quite a few points.

Get far away from your opponent, and stay in a duck position (keep pushing down). Now, as your opponent draws closer to you, press the fire button. This will cause you to do a foot sweep time after time, if you wish. Your opponent will not be able to get close to you by walking, unless he wants to fall flat on his face.

Do not be afraid to do a few forward and backward somersaults. If you learn how to execute these well, you can absolutely smear your opponent.

CUT HERE





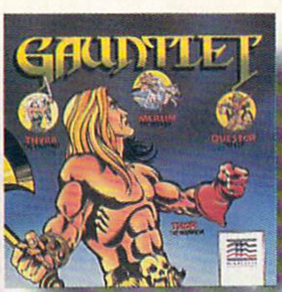
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WE JUS
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Text can be printed in every font available through GEOS. These documents were printed on an Apple Laser Writer

VANISHING TIMES

A Berkeley Softworks Publication — Vol. XLMIV Number 4567

EARTH TO BEGIN SPINNING IN OPPOSITE DIRECTION



A shocked consortium of scientists confirmed the world's worst suspicions Tuesday, when they announced that the Earth was indeed slowing down. They expect the planet to grind to a halt early Thursday, reversing its direction and getting back up to speed by Monday night.

Although the research was startling, the scientists urged people not to panic.

"I suppose I'd lock all the breakables in your cabinets," offers Dr. Lee Llevano, "but outside of that, I'd just tell people to hold on and enjoy the ride."

Apparently we're in for quite a ride. Dr. Dennis Rowland demonstrated the effect of the sudden reversal by dropping a raw egg into a MixMaster blender set on "puree."

"If we assume people have the consistency of this egg," Rowland asserted, "I think it's safe to say that the effect of this phenomenon will leave them in a state somewhat similar to finely ground beef."

Asked if there were anything the public could do to prepare for the

"I'd just tell people to hold on and enjoy the ride!"

catastrophe, Dr. Rowland thought a while and offered, "I always recommend fastening your seat belt. It just makes so much sense, don't you think?"

Analyst Staci Glovsky was less distressed with the news, asking "What's the big deal? Jeez, you guys are acting like a bunch of

Continued Page 8

MAN BITES POODLE!



BERKELEY — Dozens of citizens watched in horror today as a man, who described himself as an animal lover, actually bit a miniature teacup poodle.

Donald Anderson, of Studio City, California, dismissed the incident as a case of mistaken identity.

"Somebody asked me if I wanted a dog with mustard, and since it was close to lunchtime anyway, I just took a bite without looking."

The dog, responding to the name "Knockwurst," then gave out a yelp that bystanders recalled as sounding like "a cross between a gun shot and

"Sure it was my mustard, but that doesn't prove a thing!"

an air raid siren." In the process, the pinched pooch set a world record in the long jump of thirty feet, two inches.

Anderson was booked on felony charges of dog munching, poodle endangerment and assaulting a canine with intent to commit relish. He was later released on his own recognizance. The man who offered him the poodle has also been charged with attempting to apply mustard to a mutt, a misdemeanor in Alameda County.

"It's a smear tactic," yelled Rob Siegel, the man still being sought by police. "Sure it was my mustard, but that doesn't prove a thing. Besides, they have to prove with

Continued Page 4



Television Highlights

This week, you can expect to find some of the best programs right on your own TV set at home. Following are some of the highlights:

Monday:
(4) 6:30 I LOVE LUCY
Lucy and Ethel hatch a plot to get Lucy into Ricky's show at the club. (R)
(7) 8:30 WILD KINGDOM
Marlon sits in a studio safe and sound, while Jim risks his life for some unimportant animal.

Tuesday:
(2) 7:30 LAWRENCE WELK IN BULGARIA
The famed band leader takes you thru 60 minutes of musical merriment, all the time wondering why he is in Bulgaria.
(5) 9:30 BRUCE LEE IN REVENGE OF THE MEATBALL
Epic hero Bruce Lee punches his way through pasta, and rescues a pizza from 600 Neopolitan Ninjas.

Wednesday:
(11) 6:30 I Love Lucy
Lucy and Ethel hatch a plot to get Lucy into Ricky's show at the club. (R)
(4) 8:30 Gilligan's Island
Gilligan and the Skipper finally wise up and figure out that Ginger and Mary Anne must be getting awfully lonely right about now, and go for (Continued Page 4)

Weather

Local weather: Look for clouds throughout the morning, burning off near midday. Temperatures should soar to the mid 200's by late afternoon with heavy electrical activity and thunderstorms appearing around, oh, say

Continued Page 2

T MADE
GE NEWS.

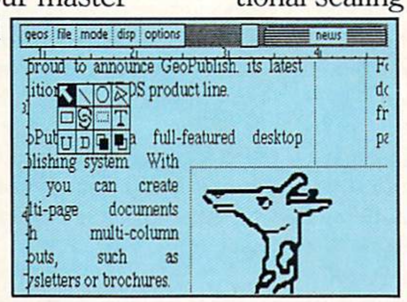
These days, the biggest story in the news is geoPublish. The page-making program for GEOS-equipped 64's and 128's that replaces lifeless layouts with page after page of powerful, punchy professionalism.

Freedom of the press.

Actually, geoPublish is very patriotic software. After all, what other application guarantees your freedom of self-expression? Well, geoPublish sure does. In fact, every piece it prints is dedicated to the preservation of your personality on paper.

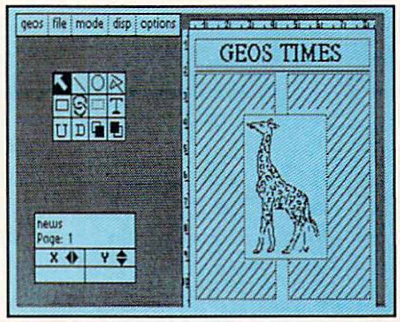
Which means that finally, your newsletters never need to look like anyone else's, ever again.

All you do is draw a bunch of columns for your master layout. They could be two, four or sixteen across the page. They could be short and squat, or long and skinny. It's your call. After that, you just "pour" your geoWrite document, text, graphics and all—into column after column. Page after page.



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Reviewed by Gary V. Fields

City Desk

Computer: Amiga (512K Required)
Company: MicroSearch
9896 Southwest Freeway
Houston, TX 77074
Price: $149.95

City Desk V1.0 gives you the ability to publish documents, books, pamphlets, newspapers, magazines or anything else printed on paper. The results, which are both professional and affordable, can include multiple columns, mixed fonts (both type and size) and graphics—all of which you can move, change, resize, save to disk or print. The final layouts can be dumped to either an inexpensive dot-matrix printer or a laser printer for true typesetting quality.

The first screen you'll see inside *City Desk* is a proportional page divided into two columns and a smaller box containing *City Desk*'s 12 main tools. The tools in the small box allow you to move, copy, crop, outline, underline, resize, edit, magnify or trash both text and graphics. You simply press, click and do. The only time you have to use the keyboard is to input or edit text for headlines or short stories. I found this logical scheme to communicate with *City Desk* simple to master.

Most people, myself included, would expect a desktop publishing program to include a word processor of some sort. *City Desk* does and doesn't. You can write, format and input text directly into pages using the headline editor (there is no limit on how much text it will hold), but compared to a dedicated word processor this editor leaves a lot to be desired. It's great for a few lines (headlines or cutlines to go under graphics) but not much more. However, *City Desk* was designed to be compatible with the file standards used by most word processors. The program can accept text from all the word processors now on the market including Notepad.

The headline editor handles text as if it were a long row of characters—like a skinny piece of paper of infinite width. The advantage to this arrangement: when this editor is used, the font and size codes embedded in the text are displayed so you can edit them as well as the text. This means you can easily edit and refont text imported from your word processor (even change the font and size of separate letters in the same word). Even though the screen text may be displayed as a 20-point emerald, the text displayed in the editor is the default 8-point topaz. Each font, size and style is distinguished by simple code and plain English.

City Desk will work with any matrix printer selected from preferences as well as most laser printers.

The screen page can be divided into as many columns as you need. When you recall a text file (or enter one via the headline editor) a small arrow will appear. To place the text in a particular column, you simply point at it and click the mouse. After text is placed on the page, it can be moved around like a piece of paper. Separate pieces can be chained together to form large documents or broken up to create smaller ones. All text can be selectively resized, refonted and relocated at any time. Once it has been placed on the page, you can move it between columns and pages or relocate it across columns. The layout editor lets you do anything on screen you could with paper and scissors. Plus you can escape from cropping or sizing errors simply by reselecting a tool and starting over. I was especially happy with the way *City Desk* handled resizing text and graphics. Even when objects were made small and then returned to large, no detail (and we're talking about *fine* detail) was lost, regardless of how often the object was changed.

The program uses two separate moving tools—one which allows you to move an object inside the page only and another that lets you move between the pages and the clipboard. At first I questioned the logic in this duplication of tools, but with experience the need became obvious. Because at the smallest magnification text can be almost invisible, it is possible to inadvertently move small pieces of text or even a graphic off the page and lose it under a window if the universal move tool is used. If the default move tool (page only) is used that can't happen.

City Desk's graphic editor lets you create your own graphics or use and edit those designed by other commercial packages. Though not as powerful as those, it includes most of the drawing tools you need including draw, box, circle, rotate, line width, crop and magnify. The only option I missed was the ability to embed text directly into a graphic. If you want to add text to a graphic, you must paste it on the screen—not the graphic screen.

You can use any standard IFF-format file with *City Desk*. This means any clip art files, your own work or those created with a more powerful graphics program, can be used on a *City Desk* page. (The program disk includes a small library of clip art.) Graphics used by *City Desk* can only be black and white. If you try to import a design with more than those two colors, *City Desk* will alert you that it must convert the colors to black and white before it can be used. This conversion routine works pretty well, but is slow, and there is no way to escape the conversion once it has begun. I now always convert files to black and white from within the parent graphics program (usually much faster) before using them with *City Desk*.

Regardless of how powerful any desktop publishing program is, it is judged by the quality of the final printout. Like any graphics program, this is dictated by the printers it supports. *City Desk* will work with any matrix printer selected from Preferences as well as most laser printers. My Star SG10 gave me results I was delighted with even though it's far from the most expensive on the market. This quality is possible because the program translates accurately and sends to the printer even the most detailed graphics. Text can be displayed in a variety of modes and styles including right, left and center justifications.

Users of laser printers will be happy to find *City Desk* includes some special font faces just for their use. To show off the possibilities, MicroSearch created and printed the accompanying manual using a laser printer. Non-laser printer users are offered the seven regular fonts—opal, garnet, sapphire, ruby, etc. I was able to add to that list by deleting the laser fonts from my work disk and adding fonts from other programs.

Like so many Amiga products, *City Desk* is designed to be controlled intuitively. I suspect most end users, unless they must compete with big commercial print shops, will find *City Desk* can handle all they'll ever need. And if they have access to a laser printer, they may be able to prove me wrong even on that one disclaimer. C



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* (520ST Graphics)

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Reviewed by Matthew Blais

TimeSaver

Computer: Amiga 1000
Publisher: C Ltd.
723 E. Skinner
Wichita, KS 67211
Price: $79.95

The *TimeSaver* from C Ltd. is a unique peripheral for the Amiga 1000 that provides a battery-backed real-time clock, keyboard macros that work with any software, password protection against unauthorized users and more. Unfortunately, all this functionality comes at the expense of some user friendliness.

What makes *TimeSaver* unique is the way it connects to your Amiga: it plugs into the keyboard port, and the keyboard plugs into it. It's small enough to hide away underneath the Amiga in back where all of the cables and connectors are and is quite invisible there. Bear in mind that *Timesaver* works only with the Amiga 1000.

There is no diskette of Amiga software included with *TimeSaver* because all of its functionality is provided by a microprocessor, ROM and 8K of RAM within the unit. When the Amiga is on, *TimeSaver* draws its power from the keyboard port, saving its internal battery to keep its clock and user-programmed macros alive when the Amiga is turned off.

TimeSaver intercepts all keystrokes from the keyboard and sends most of them along to the Amiga unchanged. When it detects a key combination that signals a macro, it sends the macro contents to the Amiga instead. To a program, it looks like the entire macro was just speedily typed on the keyboard by the user. Mouse movements and clicks can also be programmed in *TimeSaver* macros by using the keyboard mouse controls (an AMIGA key with cursor or ALT keys). Seeing the pointer zip around your screen while the mouse sits quietly on your desk is a bizarre sight indeed.

TimeSaver sets the Amiga's own "software clock" by sending the word "Date" followed by the current date and time and a RETURN character. To CLI, it looks like you just typed in the command to set the date and time, and it runs the Date program which does just that. Needless to say, this only works when you are in CLI. *TimeSaver* can send the Date command automatically whenever the Amiga boots by first sending a control-D, which prevents the s:startup-sequence command file from executing. It then gives the Date command, and causes s:startup-sequence to execute. A little klugey, but it works. You can optionally have *TimeSaver* execute a macro instead of the s:startup-sequence file.

One of *TimeSaver*'s features which I found most useful, ironically, was its "history" function, which allows you to recall your previous CLI commands, then edit and re-enter them. Ironically because the implementation is again somewhat klugey and frustrating to use (*TimeSaver* prints your previous command to the screen preceded by a semicolon, and retypes it after you have edited it), but it still beats having no command recall or editing at all. One major annoyance is that while you are editing a command, none of the keys will repeat.

Unfortunately, there is no way for *TimeSaver* to tell if the keys you're pressing are going to CLI or into a word processor or other application, so everything you type between RETURNs (including AMIGA-key keystrokes) is saved as another "command" line. If you go from an editor to a CLI window, everything you just typed in the editor is in *TimeSaver*'s command memory (which holds approximately the last 1000 characters typed), so you can forget trying to recall your previous CLI commands. You can get around this "feature" by disabling and re-enabling *TimeSaver*'s command-save feature whenever you switch to typing in a non-CLI window—that is, if you can remember to do it.

All of *TimeSaver*'s built-in functions are accessed by using the HELP key in combination with other keys. Most of the functions such as date, password, and startup macro can be individually toggled on or off, and if you are in CLI *TimeSaver* will display a "menu" of the current settings of the functions. This is the high point of *TimeSaver*'s user friendliness.

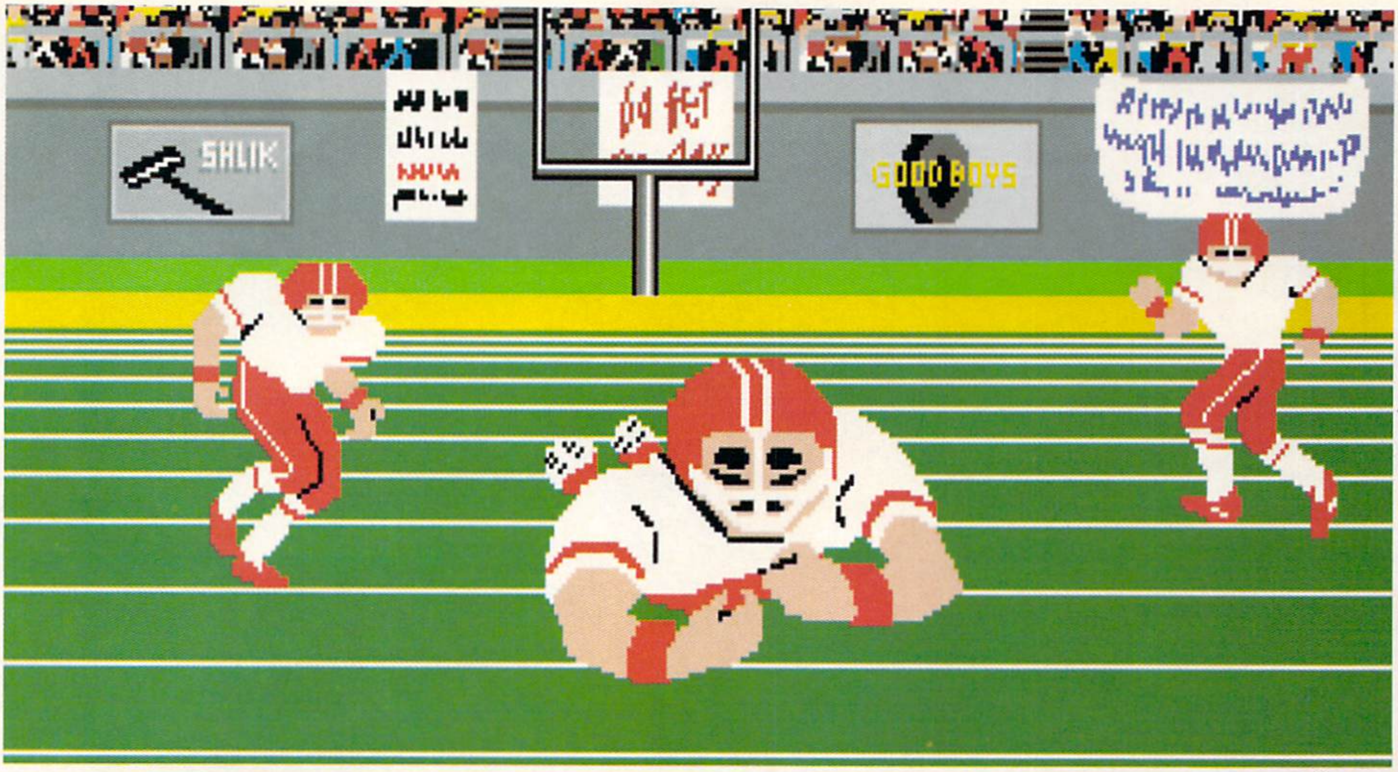
All of *TimeSaver*'s flags and options can be toggled while you are in any application, but unless you are in CLI you probably won't see any indication that the *TimeSaver* commands you are typing are having any effect, which can be quite confusing. For instance, try typing in a new macro without being able to see what you're typing . . . Are you sure you didn't hit a wrong key somewhere back there?

Some CLI-related macros come predefined in ROM, like "cd df0:" and "copy #? to RAM:". Some of these macros are not explained in the manual, such as the "Move mouse and click on left requester box" macro.

You can enter as many macros (of any length) into *TimeSaver* as you like until you fill up the user macro memory (about 7000 characters). User macros are identified by an "action" key (any one of CTRL, either ALT, either AMIGA, and RIGHT-SHIFT) in combination with any other key. But you'd better write down the macros you define, because if you forget what keystrokes you used to name a macro, *TimeSaver* won't help you to find out. The only way to delete an unwanted or forgotten macro from memory is to delete all macros—ouch!

If you have a nosy little brother who snoops around your Amiga when you're out (or if you're just paranoid), you'll appreciate *TimeSaver*'s password security feature. When it is enabled, *TimeSaver* will lock the keyboard when the Amiga is first booted and will only unlock it after a four keystroke password is correctly entered. You get to define your own password, but don't forget what it is unless you'd like to take a tour of your *TimeSaver*'s insides and lose all your user macros as well. The only way to turn off the security feature if you forget your password is to kill *TimeSaver*'s power by disconnecting its internal battery. If you do this, you will also lose all the macros you've defined and have to reset *TimeSaver*'s internal clock, which like all of *TimeSaver*'s functions is done from the keyboard.

TimeSaver's automatic date-setting feature and macros are useful additions to any Amiga, and *TimeSaver* doesn't take up useful space or occupy any I/O connectors as some Amiga clocks do. In addition, it is nice to have your macros always at your fingertips and not have to load them in from a disk every time you boot. *TimeSaver*'s security feature is novel and effective, since *TimeSaver* is invisible unless you get down behind your Amiga and know what you're looking for. But if you want a CLI command history editor, you'd be better off with one of the commercial or public domain "shell" programs. In addition, *TimeSaver*'s poor manual and klugey, unfriendly user interface make it occasionally frustrating to use.



Amiga screen

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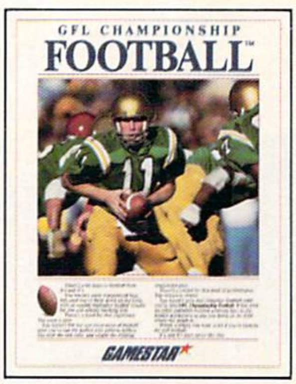
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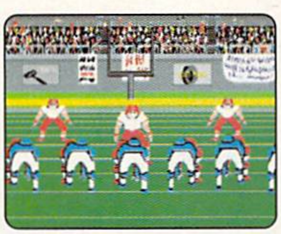
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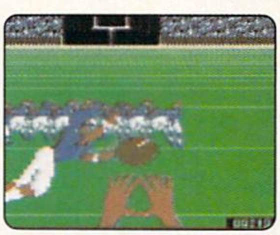
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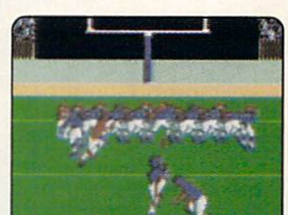
Amiga screen



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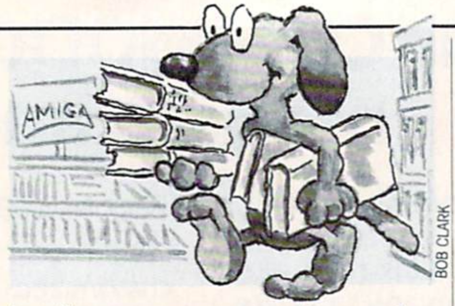
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Reviewed by Tim Jones

Amiga Book Review



In the twenty or so months at I have owned my Amiga, I have seen increasing numbers of Amiga-related books line the shelves at my local book stores. Needless to say, I am the owner of quite a few of them. What I would like to do here is present a compendium, albeit far from complete, of books for this wonderful computer. The list includes books from many publishing houses, and, if I miss one that you especially like (or dislike), it's because there is no way to cover them all in one installment. Let's take a look at the ones that particularly caught my eye.

Amiga Technical Reference Series
Addison-Wesley Publishing Co., Inc.
Four volume set

These books cover all aspects of the Amiga from the Hardware up through the Exec and into Intuition. The only thing not covered in the A-W books is AmigaDOS. The books were written by the technical staff at Commodore-Amiga, Inc. and are very complete. The only problem is that they were not intended as tutorials for newcomers to the computer world, but as reference guides for newcomers to the world of the Amiga. Aside from what I mention about each of these books, they all include a glossary of terms to make it easier for the novice to understand the information that is being presented. A serious Amiga reference library is not complete without these books:

Amiga Intuition Reference Manual
$24.95

The *Intuition Reference Manual* is a guide to the many aspects of programming the Amiga and making use of Intuition, the Amiga's icon-oriented user interface. The book is broken up into twelve chapters and three appendices. The first two chapters introduce you to Intuition and describe what is being provided for use by the programmer for creating an "Intuitive" user interface. The remaining chapters describe the fundamental display components used by Intuition; how to create and manipulate screens and windows; how to create, define and utilize Gadgets (they are referred to as "multipurpose input devices"); how to create and install custom menus, menu items and sub-items and how the user's selections are transmitted to the program as well as how to program requesters (another form of information/input device) and alerts (which are described as "emergency communications devices").

Aside from these display-oriented features, this one also covers input and output methods, keyboard and mouse functions, graphics functions including lines, text and images. The book closes with a discussion of style in an attempt to get programmers to create programs that will utilize similar functions, making it more natural or "Intuitive" for the user of an application.

The appendices include information on the various defaults assumed by the Intuition library, the actual Macro or library function calls and a list of internal procedures for advanced programmers.

Amiga Hardware Reference Manual
$24.95

This manual describes the various hardware aspects of the Amiga (1000 only at the time of printing), including the 68000 MPU and custom chips. There is information that will introduce the simply inquisitive person to the Amiga's hardware and more advanced sections that describe how each register entry effects the system.

This edition is divided into eight chapters and one appendix. The chapters are divided into sections describing basic hardware components and a survey of the graphics and audio features, the various custom chips, including the Copper and Blitter chips and their respective programming requirements as well as the hardware used to control sprites, playfields, audio, and various system interfaces.

The appendix is a complete listing, both alphabetically and address-wise, of all of the graphics and audio system registers and the functions of their bits, a system memory map, descriptions of internal and external connectors and specifications for various peripherals and the keyboard.

Amiga ROM Kernel Reference Manual: Exec — $24.95

Libraries and Devices — $34.95

These two editions contain complete listings of all the include files for C and Assembly programmers as well as discussions of the IFF standards and programming examples in both C and Assembly code. The data contained is designed to augment what is discussed in the Intuition and Hardware manuals. The programming examples are well annotated and make it easy for anyone familiar with either language to follow what is going on.

There is information on programming devices such as the serial and parallel devices, a complete and in-depth tutorial on Amiga graphics, complete listings of the library Macros, or functions, for Intuition and the Exec and complete discussions of the Exec's memory management, multitasking and inter-task communication functions.

Inside the Amiga
John Thomas Berry
Howard W. Sams & Co.
$22.95

Inside the Amiga takes much of the information in the Addison-Wesley books and presents it in a much more novice-friendly environment. Of all of the Amiga-related books that I own, this one has been the most helpful in my limited attempts at C programming.

Mr. Berry takes the reader on a very well-planned trip through the Amiga and gives very instructional examples of most of the capabilities of the machine. He presents the reader with a series of functions, or macros, that, once entered and compiled, may be added to other programs, making it easier to get specific results with less programming effort.

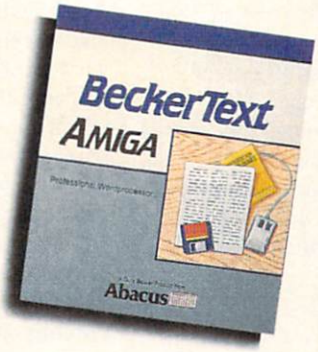
He has included introductory sections that will introduce the "student" to various software components and specialized Amiga-specific data types. There is complete coverage of the display functions, Process Control, AmigaDOS, Intuition, Animation, Sound and Speech, and Disk File I/O. Even though Mr. Berry doesn't cover the subjects as thoroughly as the Addison-Wesley texts, his delivery is more easily understood by someone who is not familiar with the type of system programming required by the Amiga.

If you have a knowledge of the C programming language and are looking for the best tutorial-based text available to

Continued on pg. 52

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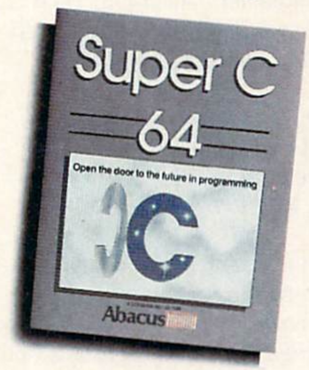
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Continued from pg. 50
get you started with the Amiga, then *Inside the Amiga* is a must.

Programmer's Guide to the Amiga
Robert A. Peck
Sybex, Inc.
$24.95

Robert Peck was the head of the Amiga documentation team responsible for the Addison-Wesley manuals mentioned above. *Programmer's Guide to the Amiga* picks up on points missed in Mr. Berry's text. Mr. Peck takes the programmer to a deeper level than Mr. Berry, so his book is less oriented to the newcomer. If, however, you are familiar with the Amiga and are looking for a more advanced text, *Programmers Guide to the Amiga* is definitely worth its cover price (and then some).

From the basics of machine functions all the way through to the lowest level of event trapping, Mr. Peck has brought it all into view for experienced programmers. There are examples that demonstrate each point that he is trying to get across, and each is written as a complete module so that you can see exactly what is being discussed.

In addition to the programming information presented, Mr. Peck also includes a very complete guide to using the default editor, Ed, that is included with the Workbench disk and more complete information on using the Amiga C compiler (Lattice) and its linker.

If you are a more advanced programmer looking for in-depth information, then Robert Peck's *Programmer's Guide to the Amiga* is definitely for you.

Amiga Programmer's Handbook
Second Edition
Eugene P. Mortimore
Sybex, Inc.
$24.95

With all of the books available on programming the Amiga, it was only logical that a book concerned with the syntax of the Amiga library function calls would become available. In this case, however, Mr. Mortimore's book preceded many of the programming books by many months.

The *Amiga Programmer's Handbook* has a complete breakdown of every function or macro included in the Exec, Intuition, Workbench, Layer and Graphics (divided into three parts) libraries. The sections are structured alphabetically and include complete examples of what is required to call the function/macro, what, if anything, it returns and full descriptions of what the call will actually do. There is also a discussion concerning related functions/macros where necessary.

The text is fully indexed and the information is presented in a very clear and concise manner. In the first edition, there were many typographical errors that could lead to confusion, but these have all been cleared up in the second edition.

If you are going to be doing any serious programming on the Amiga, this text is a must. It will save you many hours of frustrating searching to find out just which function is proper for your situation.

The AmigaDOS Manual
Second Edition
Commodore-Amiga, Inc.
Bantam Computer Books
$24.95

When Addison-Wesley took over publication of the texts mentioned above, Bantam got the rights to publish the combined AmigaDOS manuals as one volume. The new text contains all of the information on AmigaDOS that was in the three original AmigaDOS manuals—*User's Manual*, *Developer's Manual* and *Technical Reference Manual.*

The first section is devoted to the explanation of AmigaDOS from a user's point of view. The CLI (Command Line Interface) is discussed and examples are given of the many commands available. Information on ED and EDIT are also given in this section as well as a minimal introduction to BATCH files.

Section two describes the various functions available under AmigaDOS in a manner very similar to that used by Mr. Mortimore in *Amiga Programmer's Handbook*. Each function is listed with the syntax and calling requirements (including stack data) and a description of the function's usage and any related functions. Also, the editors have included a full description of the Amiga Macro Assembler and the Amiga Linker.

In section two, they also cover the various methods of console input and output. A full explanation of both CON: and RAW: screen types is given with examples that can be used straight from the CLI without the need to compile or link a source file.

In section three, the AmigaDOS Filing System is fully discussed along with information on using DiskEd, the disk editor included in the developer's packages. The section is broken into discussions of the different disk block types, the different "HUNK" types and the different file types used by AmigaDOS.

Also, section three includes advanced information for developers wishing to create additional disk interfaces for AmigaDOS, non-DOS interfaces (additional serial or parallel ports, etc.) or to use the Amiga without the overhead of Intuition and Workbench. This last section is somewhat sketchy and constantly refers the reader to the *ROM Kernel Manual* (*RKM*), so would not be of much help without the *RKM*.

If you are going to be doing any programming that involves AmigaDOS, you will definitely need this book. Also, if you are new to a DOS-type command environment, it is also suggested that you look into this one for its introductory section.

The Amiga
Michael Boom
Microsoft Press
$19.95

If you are new to the Amiga or are just interested in reading about it before investing the full purchase price of the machine, then Michael Boom has the book for you. *The Amiga,* subtitled "Images, Sounds, and Animation on the Commodore Amiga," is a very good place to look for a complete description of the Amiga 1000 from opening the carton to using such programs as *DeluxePaint*, *Deluxe Music Construction Set* and *DeluxeVideo* from Electronic Arts.

Mr. Boom gives a very complete introduction to the operation of the Amiga, all the way down to a full pictorial look at its insides and a very instructional discussion of how a video display works.

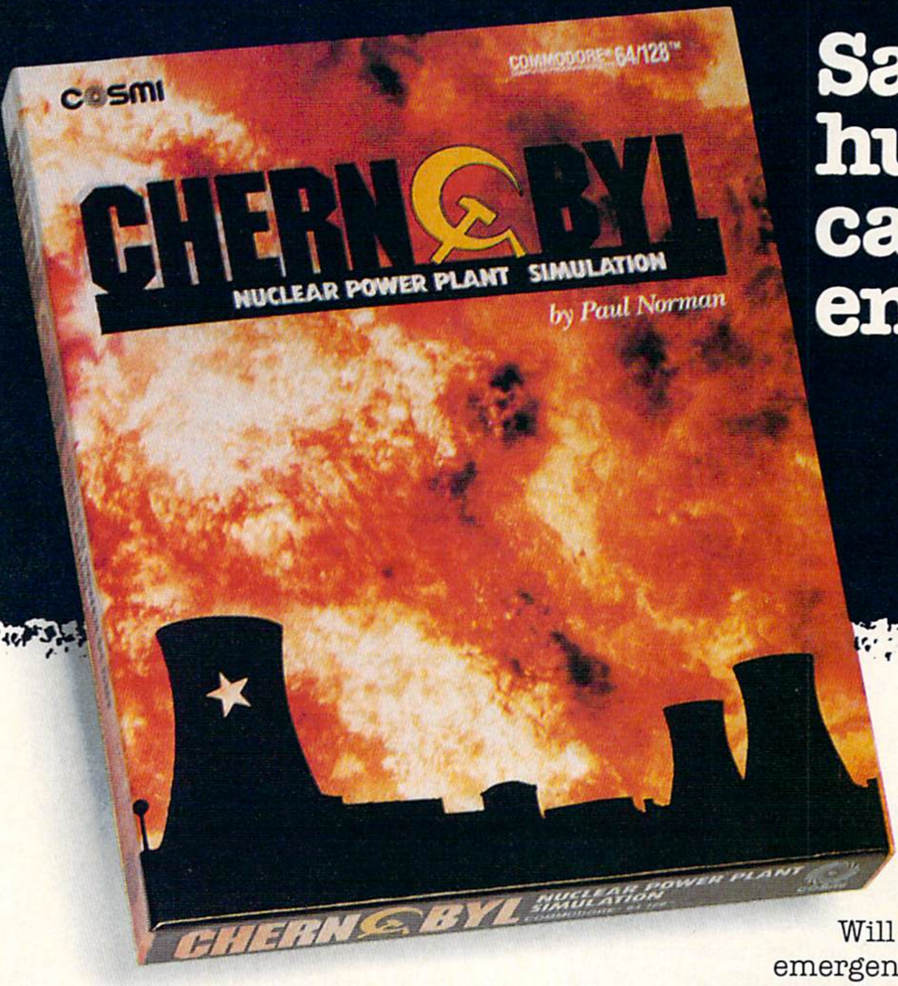
He includes chapters that describe the commercial packages mentioned above as well as chapters devoted to introducing the reader to the full function abilities of AmigaBASIC. He demonstrates how easy it is the get this machine to do the many fantastic things that it has become known for. From sound and speech to animation graphics, he devotes many chapters to methods by which the reader can access the power of the machine, either by commercial program or simple AmigaBASIC programming.

For the complete newcomer, *The Amiga* can help bypass a lot of frustration while making it fun to learn how to use his or her Amiga.

Conclusion

As I said, this collection is not complete, and will be updated from time to time. If you know of a book that wasn't mentioned here, which you feel deserves recognition (either for good reasons or bad), drop me a line and I'll be sure to check into it for a future installment.

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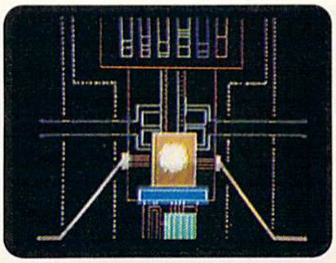


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by Shay Addams

An Orc's Night Out

News and opinion from a leading explorer of those fantasy realms called adventure games.



SUSAN LIPPMAN

Ever get tired of rescuing one fantasy land after another from orcs, evil wizards and other fiends? Then you'll appreciate Firebird's latest import from England, which gives you a chance to doff those do-gooder duds and don the foul-smelling garb of a beady-eyed orc. For in *Knight Orc* you view the world through the beady eyes of Grindleguts, an orc caught on the wrong side of the tracks.

This text and graphics tale is divided into three sections. "Loosed Orc," the initial scenario, defies you to cross a chasm and return to Orc Mountain. This is the main puzzle, though you must unravel a few others to obtain the items needed for solving it. While searching the forests, a castle and other areas, you'll meet a bevy of characters—Synonym the Wizard, the Annihilator, a hermit, and many more—all moving about independently, engaging you and each other in conversation.

Their irreverent antics make this one of the funniest games of the year. Often you'll "hear" them in the distance whining, "Who took all the treasure?" or "How can I get down the well?" Lampooning the typical adventurer's obsession for treasure, they scurry about seeking gold coins, disks and similar items, even stealing from one another and you. You won't get any points for grabbing treasure and are much more likely to get killed if you get into a fight over loot. Since the locals will attack if they realize you're an orc, you've got to concentrate on escape, not getting rich quick.

The characters play a more important part in the next two sections, "A Kind of Magic" and "Hordes of the Mountain King," which cannot be played until you've completed the first two. In order to finish these scenarios (you can move back and forth between them), you need the assistance of certain characters. You earn points for recruiting them (top score is a whopping 1,000) and for learning each of 21 magic spells, which come in handy in dealing with people and monsters. As in *Maniac Mansion*, some puzzles require several characters working in unison. To have them do your bidding, you can issue orders that may consist of full sentences containing direct objects and prepositions.

The 1,000-word parser facilitates a number of unusual actions. You can tell Fungus to "Wait three turns, go to the oak, get the sovereign, find me." Next you might have Odin "Go to the cord, get it, find Fungus, give the cord to Fungus, find Kris, kill him." This is extraordinary parsing. Though some Infocom games allow you to go directly to a location by typing "Go to room name," the Infocom parser doesn't let you go to an object— yet this one enables you to do so even if the item is being carried around by another character!

Amiga-using orcs will find other surprising features. You can type "Oops" and undo your previous action, even if it killed you; this may be repeated to step back move-by-move through the game. You'll marvel at another time-saving innovation: at any point you may "RAM save" your position, then "RAM restore" it much faster than by restoring a game saved to disk (an option that's still available). There is no waiting for disk access when new text is displayed on the Amiga version, and little on the 64. (Graphics may be turned off to speed up the game even more.) The disk is not protected, so you can make back-ups of the program. Now and then it asks for a word from a 30-page novelette (also hilarious) included in the manual.

Illustrations are quickly painted in a hazy, watercolor style and may be pulled up and down with a joystick or mouse and a cursor that looks like a little wizard. The style is original, but not one I'd like to see again. Armed with the smartest parser of the year, *Knight Orc* presents an entertaining bit of role-reversal suitable for fans of text-only *and* graphics adventures, but those who like puzzles centered on character interaction as well as object manipulation will have the most fun.

Another recent Firebird import, *Guild of Thieves* is Magnetic Scrolls' follow-up to *The Pawn*. Set in the familiar land of Kerovnia, this one also casts you in the role of anti-hero, an apprentice thief who must rob the Kerovnian Bank, a castle and the nearby village in order to qualify for membership in the Thieves' Guild. The same fine graphics style, well-written text and excellent parser make this a highly recommended sequel that's available for the 64 and the Amiga.

Phantasie III, Amiga-style

Though I completed the 64 version of *Phantasie III*, the Amiga conversion's stunning graphics nearly seduced me into playing this hack and slasher all the way through again just to see more of the intricately-illustrated landscape. Numerous enhancements make this a far better fantasy. You can use keyboard, mouse or pull-down menus to enter stores, conduct transactions and participate in other activities. The Wilderness area now scrolls when you reach the edge, instead of being displayed one section at a time. Towns are depicted with full-screen illustrations.

A new layout is used to show your party's character stats during combat, and your team and the monsters are represented with precision-detailed and well-animated figures. When a party member is killed, an ornate cross-shaped tombstone replaces his figure. Sound effects include the whooshing of swords and music that accompanies spellcasting. One thing that drove me crazy in the original game was that it wouldn't tell me a character was carrying the maximum of nine items

until after I had already tried to give him something. Now the display tells you if a character has nine items. The program also permits you to save the status of several dungeons instead of just one, and it is super-fast in all respects.

For Amiga owners who missed earlier reviews, *Phantasie III: Wrath of Nikademus* enables you to use characters created in *Phantasie I* or roll up six new ones, then send them across the continent of Scandor and on to the netherworld to vanquish the evil Nikademus. (*Phantasie II* has not been converted for the Amiga.) The combat system adds damage to body parts (legs, head, etc.) to the traditional system of hit points. Author Winston Douglas Wood emphasized combat over puzzles, which are in short supply. When you finally track down Nik, you can either join him and fight on the side of evil in the ultimate battle or wage war against an army of monsters. It's possible to win either way, but easier if you fight him. *[**Editor's note:** See the full review of* Phantasie I *and* III *in the Amiga Software Review section.]*

Like *Phantasie III*, Infocom's *Nord and Bert* is also short on puzzles. It's a collection of eight mini-stories that aren't really adventures at all. Instead, you score points through successful word-play, using homonyms (words spelled and pronounced alike but with different meanings), spoonerisms (when you transpose word sounds, such as "lunching mobster" and "munching lobster") and limericks. Upon discovering a book of riddles and a pile of burning foam, for example, you have to "riddle while foam burns." There are a few traditional logic-puzzles involving objects, but not enough in this lightweight game to satisfy hard-core adventurers. A status bar at the top shows your current location and where you can go from there, so you really don't have to draw a map. Directions such as east and up are unnecessary, for you just type in the name of the desired location to reach it. *Nord and Bert* offers built-in Invisi-Clues, accessed by special menus that appear when you type "hint." These aspects make *Nord and Bert* more appealing to novices, but I can only recommend it to those who enjoy word games and have a warped sense of humor.

What? Me Goof?

Several people wrote in to point out a variety of errors in a feature I did on role-playing games a few issues ago. How could an "expert" confuse the villain in *Shard of Spring* (Siriadne) with the evil wizard in *Rings of Zilfin* (Lord Dragos), among other mistakes, you may wonder. As a professional writer, I could easily dream up an excuse for these mistakes, but I'd feel much better by telling you the truth: an orc ate my notes. Actually, that's not *quite* true. How about this: I was playing so many adventures at the time that I contracted a rare disease—Dungeon Dyslexia—that causes a person to transpose evil wizards from one fantasy with those from another.

Still not buying it? Well, the last one is actually close to the truth, which is that while writing the story I was also completing a book that required playing 52 adventures through to their conclusions in a matter of months. By focusing so intensely to maintain accuracy in a collection of game solutions, I strained my meager brain (I'm due for an upgrade later this week), and a few bits of data got scrambled in the article, which I didn't spend as much time fine-tuning as I usually do. (I was so busy, in fact, that I shouldn't have even accepted the assignment. Note previous remark on adventurers' obsession with treasure and gold.) Now that I've been made aware of my limitations in this regard, you can rest assured I'll never make another mistak. ■

by John Iovine

Interfacing Commodore's User Port, Part 6

Building a Digital Camera, Part 2 (cont'd)

In our January issue, we ran the 64 listings for this article. Following is the 128 version we promised for this month.

Program Operation

Type in the programs for your computer. Take care in saving the programs under the proper names. This is essential for the main program to load the camera programs into memory and return.

After you have typed and saved the programs, load and run the main program. At the menu prompt choose item 2: "load the b/w camera." The computer will then load the b/w program and return to the main program. Then start the camera, item 7. After you're satisfied with the b/w camera picture, return to the main menu by pressing the "R" key. Once there, load the grey scale camera, item 3, then start it running. Return to the main menu by pressing "R" again. Now this will take longer to happen because the keyboard is only checked once per screen scan. Once you're back at the main menu choose the gray timing option 5. Change the timing to 50, 60, and 70. The program automatically returns to the main menu. Restart the camera. Notice the changes the timing has on the digital camera picture. Return to the main menu again and chose the coloration option 6. The sub-menu lists all color codes as you are prompted for the coloration of each scan. Choose whatever colors you like, the program will return automatically after all your choices are entered. Restart the camera, if you find you don't like the colors or wish to change them simply return to the main menu as before and change them.

I left an open vector line in 1000 for sub-programs that you may want to add for pattern recognition and so forth.

Commodore 128 Program Listings

The 128 Main Program is very similiar to the 64 Main Program. Simply follow these three steps to convert the 64 listing to the 128 version:

1) Delete lines 30, 100 and 802
2) Change the following lines:

```
 20 POKE 54,48:POKE 58,48:CLR
    :REM PROTECT CAP'EXCG
520 G=PEEK(5461)'CHTD
804 POKE 2604,G:GOTO 1000'CLOJ
```

3) Add the following lines:

```
262 POKE 212,88:POKE 208,0'CMRH
301 LOAD"128 B/W CAM",8'BCPB
401 LOAD"128 GRAY CAM",8'BCXC
507 G=PEEK(5461)'CHTI
510 POKE 5461,G'BGRB
606 J=PEEK(5456):K=PEEK(5772)
    :L=PEEK(5804)'GXEP
617 POKE 5456,J:POKE 5772,K
    :POKE 5804,L'DUYO
800 PRINT"[CLEAR]":G=PEEK(2604)
    :POKE 2604,(PEEK(2604)AND
    240)+12'HCMM
801 FOR L=55296 TO 56295:POKE L,B:NEXT
    :SYS 5120'GVGL
```

Once these changes are made, resave the program as "128 Main Prog". ■

Before typing this program, read "How to Enter Programs" and "How to Use the Magazine Entry Program."

128 B/W Cam

```
5 TRAP 200'BDEE
10 PRINT"[CLEAR]POKING -";'BBGA
20 P=5039: REM $13AF (END AT
   5541/$15A5)'CDBF
30 READ A$:IF A$="END"THEN 100'EIRD
40 PRINT"[HOME,RIGHT12]"P;'BCVC
50 B=DEC(A$):POKE P,B:T=T+B:P=P+1
   :GOTO 30'IUXL
100 IF T<>57222 THEN PRINT"MISTAKE IN
    DATA -> CHECK DATA STATEMENTS"
    :END'GHCK
120 PRINT:PRINT:PRINT"LOAD
    SUCCESSFUL..."'DCAE
130 PRINT"[SPACE4]RETURNING TO MAIN
    MENU"'BAUF
140 FOR T=1 TO 500:NEXT'EGWC
150 CLR'BAFA
160 LOAD"128 MAIN PROG",8'BCHF
200 PRINT:PRINT"DATA ERROR IN LINE";
    1000+INT((P-5039)/8):END'HRPI
1000 DATA 00,04,03,07,08,0C,0B,0F'BXIX
1001 DATA 10,14,13,17,18,1C,1B,1F'BXQY
1002 DATA 20,24,23,27,28,2C,2B,2F'BXYA
1003 DATA 30,34,33,37,38,3C,3B,3F'BXGB
1004 DATA 40,00,00,00,00,00,00,00'BXLB
1005 DATA 4C,0C,4F,0F,50,10,54,14'BXLD
1006 DATA 53,13,57,17,58,18,5C,1C'BXZE
1007 DATA 5B,1B,5F,1F,60,20,64,24'BXRF
1008 DATA 63,23,67,27,68,28,6C,2C'BXHG
1009 DATA 6B,2B,6F,2F,70,30,73,33'BXXH
1010 DATA 00,AD,02,DC,8D,50,13,A9'BXRY
1011 DATA FF,8D,03,DD,78,A9,0B,8D'BXDA
1012 DATA 02,DC,A9,0B,8D,00,DC,8D'BXGB
1013 DATA 00,DC,A0,00,A9,0B,8D,00'BXEC
1014 DATA DC,8C,01,DD,A9,09,8D,00'BXVD
1015 DATA DC,C8,C0,7F,D0,EE,A9,0B'BXVE
1016 DATA 8D,00,DC,EA,EA,EA,EA,EA'BXIF
1017 DATA EA,A0,00,A2,00,A9,0B,8D'BXWG
1018 DATA 00,DC,B9,AF,13,8D,01,DD'BXEH
1019 DATA A9,09,8D,00,DC,A9,01,8D'BXII
1020 DATA 00,DC,BD,D7,13,09,80,8D'BXEA
1021 DATA 01,DD,CE,00,DC,A9,08,8D'BXIB
1022 DATA 00,DC,A9,09,8D,00,DC,E8'BXVC
1023 DATA E0,28,D0,E1,A2,00,C8,C0'BXOD
1024 DATA 21,D0,CA,A9,00,85,FA,85'BXBE
1025 DATA FC,A9,04,85,FB,4C,44,15'BXMF
1026 DATA EA,A0,00,A2,00,A9,0B,8D'BXWG
1027 DATA 00,DC,BD,AF,13,8D,01,DD'BXPH
```

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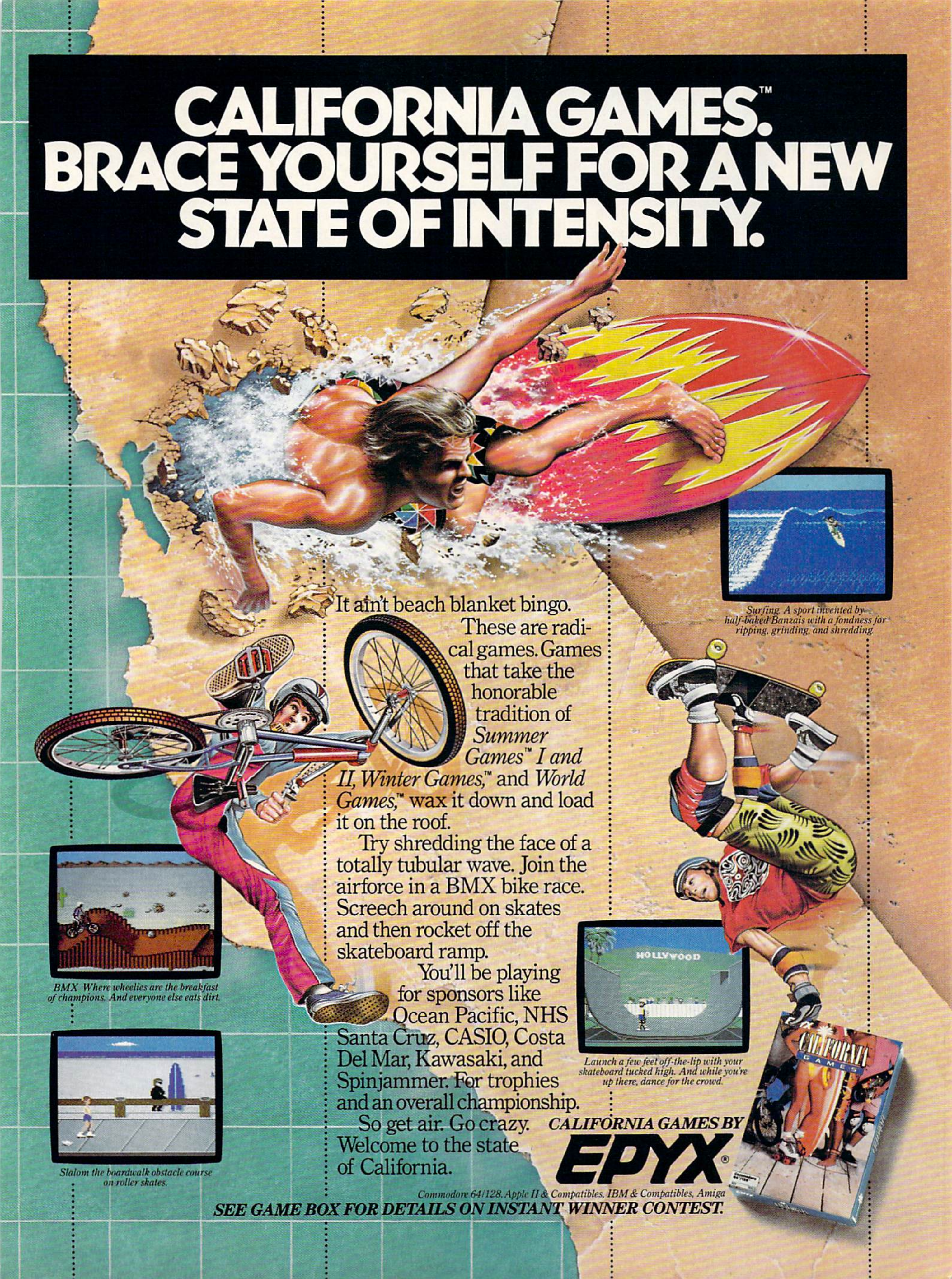
```
1028 DATA A9,09,8D,00,DC,B9,D7,13'BXLI
1029 DATA 8D,01,DD,A9,08,8D,00,DC'BXVJ
1030 DATA AD,0D,DD,C9,10,D0,60,4C'BXBB
1031 DATA 60,15,EA,EA,C8,C0,28,D0'BXPC
1032 DATA DF,A0,00,E8,E0,21,F0,6A'BXID
1033 DATA A9,0B,8D,00,DC,BD,AF,13'BXSE
1034 DATA 8D,01,DD,A9,09,8D,00,DC'BXWF
1035 DATA B9,D7,13,8D,01,DD,A9,08'BXMG
1036 DATA 8D,00,DC,AD,0D,DD,C9,10'BXTH
1037 DATA D0,34,4C,6C,15,EA,A9,01'BXWI
1038 DATA 8D,00,DC,C8,C0,28,D0,DB'BXHJ
1039 DATA 18,A5,FA,69,28,85,FA,A9'BXYK
1040 DATA 00,69,00,85,FC,A5,FB,65'BXSC
1041 DATA FC,85,FB,EA,EA,A0,00,EA'BXBD
1042 DATA EA,EA,E8,EA,4C,84,14,A9'BXKE
1043 DATA 03,91,FA,4C,A9,14,B1,FA'BXPF
1044 DATA C9,03,F0,07,A9,02,91,FA'BXNG
1045 DATA 4C,DD,14,A9,03,91,FA,4C'BXUH
1046 DATA DD,14,A9,00,85,FA,85,FC'BXDI
1047 DATA A9,04,85,FB,AD,50,13,8D'BXIJ
1048 DATA 02,DC,58,4C,80,15,EA,EA'BXSK
1049 DATA 78,A9,0B,8D,02,DC,4C,34'BXJL
1050 DATA 14,60,8D,00,DC,A0,00,A9'BXWD
1051 DATA 0B,8D,00,DC,A2,CA,CA,D0'BXWE
1052 DATA FD,C8,AD,0D,DD,C0,19,D0'BXQF
1053 DATA F3,EA,EA,8D,00,DC,4C,7F'BXVG
1054 DATA 14,A9,00,91,FA,A9,01,8D'BXLH
1055 DATA 00,DC,4C,A9,14,B1,FA,C9'BXFI
1056 DATA 03,D0,07,A9,01,91,FA,4C'BXFJ
1057 DATA DC,14,A9,00,91,FA,4C,DC'BXHK
1058 DATA 14,A5,D4,C9,58,F0,0C,C9'BXML
1059 DATA 2C,F0,0B,C9,2F,F0,0D,C9'BXJM
1060 DATA 11,F0,0F,4C,37,15,EE,55'BXNE
1061 DATA 15,4C,37,15,CE,55,15,4C'BXAF
1062 DATA 37,15,4C,40,15,FF,13,
     END'BYRG
```

END

128 Gray Cam

```
5 TRAP 200'BDEE
10 PRINT"[CLEAR]POKING -";'BBGA
20 P=5039: REM $13AF (END AT
   5858/$16E2)'CDOF
30 READ A$:IF A$="END"THEN 100'EIRD
40 PRINT"[HOME,RIGHT12]"P;'BCVC
50 B=DEC(A$):POKE P,B:T=T+B:P=P+1
   :GOTO 30'IUXL
100 IF T<>94302 THEN PRINT"MISTAKE IN
    DATA -> CHECK DATA STATEMENTS"
    :END'GHCK
110 PRINT"[HOME]";'BBFV
120 PRINT:PRINT:PRINT"LOAD
    SUCCESSFUL..."'DCAE
130 PRINT"[SPACE4]RETURNING TO MAIN
    MENU"'BAUF
140 FOR T=1 TO 500:NEXT'EGWC
150 CLR'BAFA
160 LOAD"128 MAIN PROG",8'BCHF
200 PRINT:PRINT"DATA ERROR IN LINE";
    1000+INT((P-5039)/8):END'HRPI
1000 DATA 00,04,03,07,08,0C,0B,0F'BXIX
1001 DATA 10,14,13,17,18,1C,1B,1F'BXQY
1002 DATA 20,24,23,27,28,2C,2B,2F'BXYA
1003 DATA 30,34,33,37,38,3C,3B,3F'BXGB
1004 DATA 40,00,00,00,00,00,00,00'BXLB
1005 DATA 4C,0C,4F,0F,50,10,54,14'BXLD
1006 DATA 53,13,57,17,58,18,5C,1C'BXZE
1007 DATA 5B,1B,5F,1F,60,20,64,24'BXRF
1008 DATA 63,23,67,27,68,28,6C,2C'BXHG
1009 DATA 6B,2B,6F,2F,70,30,73,33'BXXH
1010 DATA 00,AD,02,DC,8D,50,13,A9'BXRY
1011 DATA FF,8D,03,DD,78,A9,0B,8D'BXDA
1012 DATA 02,DC,8D,00,DC,A0,00,A9'BXCB
1013 DATA 0B,8D,00,DC,8C,01,DD,A9'BXFC
1014 DATA 09,8D,00,DC,C8,C0,7F,D0'BXWD
1015 DATA EE,A9,00,85,FA,85,FC,A9'BXBE
1016 DATA 04,85,FB,EA,A0,00,A2,00'BXHF
1017 DATA A9,0B,8D,00,DC,BD,AF,13'BXSG
1018 DATA 8D,01,DD,A9,09,8D,00,DC'BXWH
1019 DATA A9,01,8D,00,DC,B9,D7,13'BXDI
1020 DATA 8D,01,DD,CE,00,DC,A9,08'BXIA
1021 DATA 8D,00,DC,EE,00,DC,C8,C0'BXUB
1022 DATA 28,D0,E5,A0,00,E8,EE,75'BXHC
1023 DATA 16,AD,75,16,C9,02,D0,C8'BXQD
1024 DATA A9,00,8D,75,16,8E,74,16'BXVE
1025 DATA EA,EA,EA,A0,00,AE,74,16'BXNF
1026 DATA CA,CA,A9,0B,8D,00,DC,BD'BXWG
1027 DATA AF,13,8D,01,DD,AD,0D,DD'BXKH
1028 DATA A9,09,8D,00,DC,B9,D7,13'BXLI
1029 DATA 8D,01,DD,CE,00,DC,EE,00'BXQJ
1030 DATA DC,AD,0D,DD,C9,10,D0,47'BXWB
1031 DATA 4C,29,15,EA,C8,C0,28,D0'BXFC
1032 DATA E4,A0,00,E8,E0,21,F0,4B'BXPD
1033 DATA A9,0B,8D,00,DC,BD,AF,13'BXSE
1034 DATA 8D,01,DD,AD,0D,DD,A9,09'BXCF
1035 DATA 8D,00,DC,B9,D7,13,8D,01'BXFG
1036 DATA DD,CE,00,DC,EE,00,DC,AD'BXNH
1037 DATA 0D,DD,C9,10,D0,18,4C,30'BXUI
1038 DATA 15,EA,C8,C0,28,D0,DC,4C'BXIJ
1039 DATA 44,15,EA,EA,EA,EA,EA,A9'BXGK
1040 DATA 03,91,FA,4C,AA,14,B1,FA'BXXC
1041 DATA C9,03,F0,04,A9,02,91,FA'BXKD
1042 DATA 4C,E0,14,A9,00,85,FA,85'BXQE
1043 DATA FC,A9,04,85,FB,AD,50,13'BXVF
1044 DATA 8D,02,DC,58,A5,D4,C9,58'BXUG
1045 DATA F0,03,4C,B7,16,78,A9,0B'BXPH
1046 DATA 8D,02,DC,4C,33,14,60,4C'BXII
1047 DATA B7,16,A9,02,91,FA,4C,AA'BXRJ
1048 DATA 14,B1,FA,C9,02,F0,07,A9'BXYK
1049 DATA 01,91,FA,4C,E0,14,A9,00'BXBL
1050 DATA 91,FA,4C,E0,14,8E,74,16'BXVD
1051 DATA A0,00,A2,CA,CA,D0,FD,C8'BXXE
1052 DATA C0,07,D0,F6,AE,74,16,A0'BXXF
1053 DATA 00,4C,6A,15,C8,C0,0F,D0'BXQG
1054 DATA EF,8E,00,DC,A0,00,4C,7A'BXBH
1055 DATA 14,EA,EA,A0,00,CA,A9,0B'BXEI
1056 DATA 8D,00,DC,BD,AF,13,8D,01'BXDJ
1057 DATA DD,AD,0D,DD,A9,09,8D,00'BXBK
1058 DATA DC,B9,D7,13,8D,01,DD,CE'BXHL
1059 DATA 00,DC,EE,00,DC,AD,0D,DD'BXSM
1060 DATA C9,10,D0,03,4C,3C,16,C8'BXHE
1061 DATA C0,28,D0,E5,A0,00,E8,A9'BXXF
1062 DATA 0B,8D,00,DC,BD,AF,13,8D'BXUG
1063 DATA 01,DD,AD,0D,DD,A9,09,8D'BXCH
1064 DATA 00,DC,B9,D7,13,8D,01,DD'BXRI
1065 DATA CE,00,DC,EE,00,DC,AD,0D'BXSJ
1066 DATA DD,C9,10,D0,03,4C,4C,16'BXVK
1067 DATA C8,C0,28,D0,E5,EA,EA,EE'BXVL
1068 DATA 70,16,AD,70,16,C9,01,F0'BXRM
1069 DATA 09,C9,02,F0,1A,C9,03,F0'BXIN
1070 DATA 2B,EA,A9,80,8D,61,16,A9'BXLF
```

Continued on pg. 60


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Technical Tips/User Port, Part 6

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```
1071 DATA 81,8D,5A,16,A9,82,8D,46'BXQG
1072 DATA 16,8D,53,16,4C,80,16,A9'BXPH
1073 DATA C0,8D,61,16,A9,C1,8D,5A'BXII
1074 DATA 16,A9,C2,8D,46,16,8D,53'BXLJ
1075 DATA 16,4C,A0,16,A9,40,8D,61'BXUK
1076 DATA 16,A9,41,8D,5A,16,A9,42'BXDL
1077 DATA 8D,46,16,8D,53,16,A9,00'BXPM
1078 DATA 8D,70,16,18,A5,FA,69,28'BXNN
1079 DATA 85,FA,A9,00,69,00,85,FC'BXXO
1080 DATA A5,FB,65,FC,85,FB,A0,00'BXKG
1081 DATA E8,4C,37,14,EA,B1,FA,C9'BXRH
1082 DATA 03,F0,03,4C,96,15,A9,42'BXFI
1083 DATA 91,FA,4C,96,15,B1,FA,C9'BXFJ
1084 DATA 03,F0,07,C9,42,F0,0A,4C'BXEK
1085 DATA C7,15,A9,41,91,FA,4C,C7'BXML
1086 DATA 15,A9,40,91,FA,4C,C7,15'BXQM
1087 DATA EA,00,FF,00,FF,00,FF,00'BXVN
1088 DATA FF,00,00,00,00,22,00,00'BXFN
1089 DATA 00,00,00,00,00,00,00,00'BXHO
1090 DATA 00,8E,74,16,A0,00,A2,CA'BXUH
1091 DATA CA,D0,FD,C8,C0,1C,D0,F6'BXNI
1092 DATA AE,74,16,A0,00,4C,6A,15'BXBJ
1093 DATA 00,FF,00,FF,00,FF,00,FF'BXCK
1094 DATA 00,8E,74,16,A0,00,A2,CA'BXUL
1095 DATA CA,D0,FD,C8,C0,48,D0,F6'BXFM
1096 DATA AE,74,16,A0,00,4C,6A,15'BXBN
1097 DATA A5,D4,C9,2C,F0,0C,C9,2F'BXOO
1098 DATA F0,14,C9,11,D0,01,60,4C'BXIP
1099 DATA 1C,15,EE,50,15,EE,8C,16'BXGQ
1100 DATA EE,AC,16,4C,1C,15,CE,50'BXFY
1101 DATA 15,CE,8C,16,CE,AC,16,4C'BXMA
1102 DATA 1C,15,EA,EA,END'BPOY
```

END

Rush 'n Attack/Yie Ar Kung-Fu

Continued from pg. 20

creasing strength have been incorporated. But this game assumes its own flavor by hastening the tempo of the on-screen conflicts, presenting a contest where reflex reactions take precedence over strategic planning. In *Yie Ar Kung-Fu*, he who hesitates will lose.

Your joystick-controlled character is Oolong. He is on a personal quest to attain the immortal glory of the Kung-Fu Grand Master, a level of martial arts adeptness that requires training, tenacity and above all, speed. Your opponents are a deadly cast who will use every imaginable kick, punch and weapon combination to cut you down. If you're not familiar with such lethal fighting implements as the nunchaka, bo, tonfun and shuriken, then a rude lesson awaits you, for your challengers will be happy to resort to all kinds of sticks and stones to break your bones.

To move into an offensive stance, Oolong can jump, duck or walk left or right. Once within striking distance, he has ten attack moves at his disposal, like flying kicks, leg sweeps and lunge punches, all of which are initiated by a joystick tug or joystick/fire button combination. Again I will note that speed is the key to success in this game, but one should not underestimate the importance of approaching each match with a premeditated plan of attack. Although the opponents will become more skilled as the rounds progress, each enemy fighter does have his own built-in weakness—an individual flaw which can be exploited if spotted. Even in defeat, if a player can find this soft spot, then he has uncovered a necessary secret to advancement, a revelation that will only make him hit the reset button that much quicker.

Yie Ar Kung-Fu certainly delivers some genuine arcade kicks, but with all the competition for martial arts thrills these days, it would have been tough for this late arrival to have survived on its own. Offered as a flip side extra, however, it presents Konami with an attractive two-for-one package, granting consumers access to an excellent challenge that they might have otherwise overlooked.

Before I close, if I could have a moment to step up on my soapbox, I would like to point out the one disappointment I have with this package: an annoyance that happens to touch the nerve of my pet peeve. If a potential customer walked into a software dealership to browse around and was interested enough in this Konami product to pull it off the shelf for further examination, then the marvelously detailed, high-res screen representations on the box's back would surely draw some positive attention. There are four different shots shown, each a stunning example of graphic excellence. Unfortunately, what you see is not what you get. The game screens that the package presents are not from the Commodore version of the contest at all, but rather are unlabeled photos of screens taken directly from its coin-op predecessor. No wonder they're so impressive! Yet nowhere inside or outside the box is this fact noted. In fairness to Konami, they are not the only software publisher guilty of this practice. But it's a bad habit to pick up, especially for a relative newcomer who is trying to build audience trust, and it can turn out to be self defeating as well, since the visuals in the Commodore version, which are good to begin with, inevitably pale when placed next to the graphics of a more powerful machine. Boo! Hiss.

If we can put this beef behind us and concentrate on the quality found inside the box, then we have struck gold. *Rush'n Attack* and *Yie Ar Kung-Fu* are a dynamic duo that stand as undeniable evidence to Konami's ability to consistently please their growing arcade audience. ■

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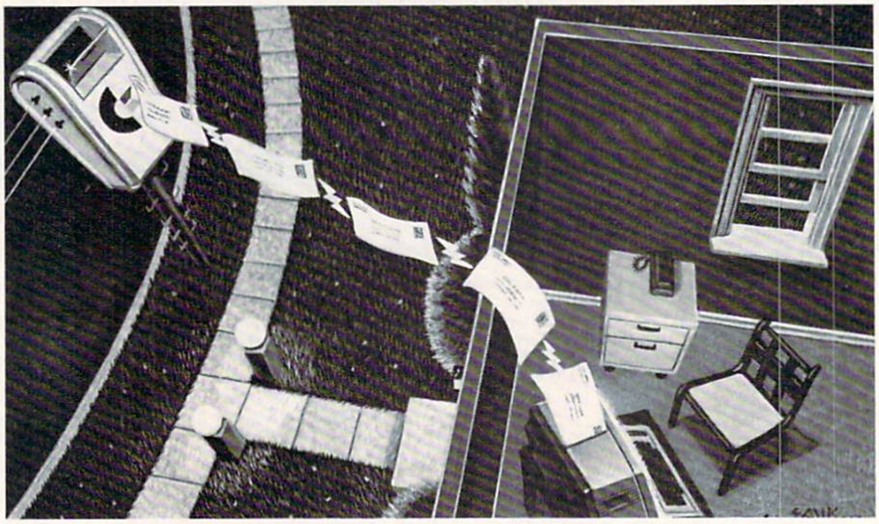
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by Robert W. Baker

Inside Q-Link

Explore the inner workings of the Q-Link telecommunication service with network pro Bob Baker.



ED SAUK

In the past I've talked about the on-line E-Mail service a few times, with a few hints thrown in from time to time. Well after the tutorial on the message board editor back in the December column, a few people were asking about the E-Mail editor. Unfortunately, the editor used for entering your E-Mail messages is nowhere near as sophisticated as the message board editor. Hopefully, a later generation of Q-Link software will provide us with something much nicer.

For now, when you're entering E-Mail messages you actually only have editing capabilities within the current line that is still in the input buffer. The input buffer is the single line that appears at the bottom of your screen. Once you press the RETURN key, that line is entered in the message and cannot be touched again. If you notice a mistake in a previous line, the only thing you can do is add a short comment to point out the correction. I usually do this in parenthesis to separate it from the normal text.

While there is text in your input buffer, you can always use the cursor key to return anywhere in the line to replace or insert text. You can also use the DEL key to remove the last typed character as well. If you position the cursor back within the text, any new characters you enter will overwrite the existing text from that point. This is different from the normal insert mode of the message board editor, where new text is inserted at the cursor position and the text that follows is moved down and kept intact.

If you want to insert text somewhere back in the middle of existing text, you have to use the INSERT key to make room for the new characters before they're entered. If you try to insert too many characters, the right end of the message will stop moving when it gets to the end of the input buffer line. The only solution is to either type over the remaining part of the line, or go to the end of the line and delete enough characters to make the text fit.

If things look hopeless, you can always press the CLR/HOME key and erase the entire input buffer line with one stroke. Then simply enter the new text as desired.

When entering your message, keep in mind that you are limited to a small number of lines in each message. It's not always a good idea to space out lines if you know before-hand that your message will be long. If you run out of room, you can always continue your text in a follow-up message. The only real problem is that you do not get any warning before you reach the maximum limit. At that point it's too late to add a continuation message; you'll just have to handle it in the next message.

Just be careful not to press the RETURN key too hard or hit it more than once as you type in your message. Entering a RETURN without any text in the input buffer terminates your message. If this happens by accident, don't panic. Simply start another message to the same person and continue where your text left off. The messages will show up as separate messages, but they should be received right behind each other. Hopefully this shouldn't be a problem for the person receiving the message.

On the receiving end, if you get a message that appears to be cut off in the middle of a thought, go back up to the top of the message and jot down the user id of the person the message is from. Then cancel that message by pressing the F5 key, and read the next waiting E-Mail message. It may be a continuation of the previous message, and you can answer that message when done reading it.

The reason I suggested writing down the user id of the first message, was just in case there is no following message from the same user. You'll at least have their user id and can generate a response message to let them know you didn't receive a complete message.

To answer an E-Mail message is really simple, you don't even have to remember the user id if answering a message just received. While the message is displayed on your screen, just press F7. A short two-line menu will appear that allows you to directly answer the current message or save that message onto disk. The normal F3 feature for saving text to disk elsewhere on the system does not function when processing E-Mail.

When you use this method of answering a message, you don't have to enter anything other than the desired text. The user id is entered automatically for you by the system. If you need to send more than one message to that user, you can use the same option over and over again to send any number of response messages to the currently displayed E-Mail message. The options of answering or saving to disk will always be available until you go back and delete the displayed message using the F5 key when the message is displayed.

Well, enough about E-Mail and editors. I think we've pretty much beat those topics to death by now, so how about a look at some of the services added to Q-Link in past months—the On-line Librarian and the Trade Plus Investment Service.

The On-line Librarian was added to the Learning Center this past fall. The Librarian staff will attempt to provide answers to reference questions on all sorts of topics posted on the "Ask the Librarian" message board. Answers will usually be posted within 48 hours, Monday through Friday. If you have a private question, you can ask your question via E-Mail to QLibrarian instead.

If you're looking for a good book or need help with a question for a school report, you should be able to get help here. You

Continued on pg. 93



Continued from pg. 18

<CSI>32;41;1;3m

would set up for text color 2, background color 1, bold and italics.

Steve Mitchum
FPO New York, NY

[I have edited out some of the sequences that had limited usefulness in a standard CON: type of environment. These included cursor positioning and line editing sequences. We may take a look at them later. — taj]

Hard Disk/Workbench Tune Up: Here's a tip that will dramatically speed up hard drive access times if you are a Workbench user. Since the Workbench handler examines every file in a directory for INFO files, I suggest that you keep the number of non-directory files in your root directory to a minimum. In fact, I have eliminated all files in my root directory with the exception of my directory INFO files and now regain control after opening the disk at the root level in under two seconds. All that is required is that you set up Sub-Directories for all of your working files. I have 28 sub-directories on my disk currently, and many of them have sub-directories within them. If you need to have the ability to use files in more than one sub-directory at a time, you can always compensate by using the PATH command.

Anonymous by request

[I tried this with an incredible difference in access time. I was notorious for ALL of my files being in the ROOT. I'm very familiar with the MAKEDIR command now! — taj]

Hard Drive Backup: There is a new hard drive backup program out in the public domain, it's called "MRBackup" and seems to work nicely. For those who are using a jh0: hard disk (That's a hard disk in a SideCar), too bad. MRBackup will only work with devices dh0: through dh9:. The solution is to assign dh0: to jh0: (from the CLI) like this:

```
1> assign dh0: jh0:
```

Dan Schein
Commodore

SlowMemLast First: If you have an Amiga 500 or 2000 with extra memory (over one meg) here's a hot tip! Add a call to the "SlowMemLast" in your startup-sequence. The upper 512K that comes with your 2000 or added to the 500 (with the A501) is considered to be FAST RAM by the computer. In reality this memory runs as slow as CHIP RAM, and since it configures at $C00000, it is on the top of the available memory stack. When programs load into FAST RAM (The default on an Amiga) it fills up this SLOW-FAST RAM first. What the Commodore-supplied program SlowMemLast does is rearrange the available memory stack so this SLOW-FAST RAM is used last, only after all other FAST expansion RAM has been used.

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101 Tips for Commodore Game Players

Compiled by Louis F. Sander

As Commodore users, we have access to the world's largest and best assortment of commercial game programs. In August, this magazine's "Tips & Tricks" section featured 25 hints for conquering some of that exciting software. You responded so enthusiastically that we had to print even more. So here, in alphabetical order, is the world's largest and best compendium of game-playing and game-beating tips.

Because so many programs are involved, these tips have not had our normal extensive testing — they're presented just as the readers submitted them.

When pondering some of the more "unusual" (cowardly?) ways of prolonging play or achieving higher scores, please also ponder these famous and time-tested words: "He who fights and runs away, lives to fight another day!"

Aliens: To get past the Alien Queen on the Newt Rescue Race, just turn to the right and fire. When the queen turns right to protect her eggs, run upward while still firing. This will take at least 22 rounds.
Robert Grzesek
Diamond Bar, California

Aliens: Here's a list of some useful codes:

To land the ship	2727H
To get to the flame thrower	1506E
To get to the air vents	2761G
Ripley to rescue Newt	7128E
Fighting alien in ship	7103F

Michael McDermott
Tucson, Arizona

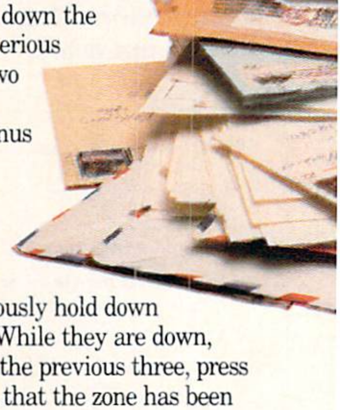
Aliens: Simultaneously pressing "P", "@", "*" and RESTORE will advance you to the next screen.
Myong Paek
Portland, Oregon

Alternate Reality: When you start a new character, attack only the evil creatures in a city (if you attack the good, they'll soon become your enemies). From morning to evening, your usual enemies are muggers and thieves. The evil creatures usually come out at night or when it is raining. When you're weak, check into an inn to restore your hit points. Beware of poison and disease from potions of the evil creatures. Poison gradually drains your hit points and disease drains your character stats.
Robert Wu
Monterey Park, California

Alternate Reality: The grid begins in the bottom left-hand corner of the map, at 1N,1E. It moves up for north and to the right for east. Here are the coordinates of all the guilds: 35N,44E; 48N,19E; 5N,3E; 43N,12E; 15N,48E; 22N,34E; 12N,28E; 60N,51E; 50N,62E; 50N,58E; 15N,6E; 3N,56E. Beware of Death Traps at 5N,42E and 7N,48E. The Alpha Omega Healer is at 21N,5E.

The game doesn't decide what a potion is until it is unsealed, so save a character to two disks (character disk #1 and backup disk #2) when he has three or more potions. Each time you load the character, he will have different potions. If you don't like the potions, backup the disks until they suit you.

If you're out of money and low on hit points, head for the North City wall in the NW quadrant. The water is free, and water and food packets don't come any cheaper.
Mike Filloon
Bismarck, North Dakota



Attack of the Mutant Camels: My niece and nephew discovered an interesting way to beat this game. While one plays, the other holds down the cursor right key until the player is in serious danger of losing a life. A quick tap or two at the F3 key will usually advance the game to the next level, often giving bonus points or an extra life.
Susan A. Juliano
Ripley, New York

Attack of the Mutant Camels: To skip zones in this difficult game, simultaneously hold down the SHIFT and COMMODORE keys. While they are down, also depress STOP. While still holding the previous three, press CONTROL. The game will inform you that the zone has been cleared, and you'll move up to the next one.
Robert Rovinsky
Duluth, Minnesota



CHARLES BARTHOLOMEW



AutoDuel: If your car is stopped when driving to a city, but the driver isn't killed, save and quit the game. When you re-boot, your car will be in the last city you were in. Now you can fix the car without losing it, or, if you must, you can sell it at the salvage yard.
Troy Nesfeder
Bethlehem, Pennsylvania

AutoDuel: If your power plant or weapons are destroyed in the middle of an Arena Battle, save your game by pressing "Q" for Quit. When you resume the game, you'll be at the truck stop of your city, with your car in the condition it was when you quit.
Carl Prichard
Address Unknown

Aztec: You can begin the game near the idol if you follow these steps: At the game's start, go completely over to the left wall without touching it, then drop a piece of dynamite. Climb down the stairs and place a stick of dynamite by the left wall. Walk through the hole made in the wall by the previous step. The idol will be somewhere nearby on your level. You may find it useful to get a machete or extra dynamite before starting this procedure.
Kevin Swanson
Glen Burnie, Maryland

The Bard's Tale II: Always complete all seven levels for your magic user, then copy your magic user to a backup disk. You'll soon have an army of magic users on that disk. Be sure to keep changing the magic user's name or he won't save. When your party has to open a chest, always have a member number 4-7 open it, since they cannot be hurt like 0-4 members.
Troy Nesfeder
Bethlehem, Pennsylvania

The Bard's Tale II: To get a lot of experience points, advance a conjurer to spell level four. Then summon four wolves and remove all but one character. Go into the wilderness, find a building and repeatedly enter and leave it. You'll find lots of monsters to battle, more gold, and lots of experience points for your character. Let the wolves do all the work.
Allen Morano
Address Unknown

The Bard's Tale II: You don't have to pass the battle test in Dargoth's Tower to receive the Sword of Zar. Just go to the Maze of Dread and teleport to 15 North and 10 East. The answer to the riddle is RED spelled backwards.
Troy Nies
Mandan, South Dakota

The Bard's Tale II: In any dungeon, you can avoid encountering monsters by removing the Dungeon disk and inserting the Boot disk. This is very useful when you're mapping a difficult dungeon level.
Eric Blais
Quebec, Canada

Beach Head: When the computer asks you for a skill level and number of players, wait for about 30 seconds without touching the keyboard or joystick. The computer will start playing by itself in a demonstration mode. Let it play until it reaches the screen you want to try, then take control by moving the joystick.
Stephen Bertrand
Pottsboro, Texas

Beach Head: When it's time to set your skill level, press the letter "F" instead of selecting a level. You'll get a special screen for setting the sound filter settings, which you change by using the function keys. By creative experimentation you can change from very high rifle shot sounds to an almost inaudible low-level rumble.
Stephen Legate
Address Unknown

Beach Head: On the fourth board, when you shoot a tower, a score will appear. For big points, keep shooting at the score itself, especially on the moving towers.
Michael Baumgart
Address Unknown

Beach Head: During the stage when you are shooting down airplanes, a small blimp floats by every once in a while. Get your ammunition meter all the way full, then shoot down the blimp and keep the fire button depressed. You'll get 2000 points each time you hit the exploded blimp. It will disappear after a second or so, but I've gotten as many as 40,000 points per blimp. (This principle is reported to work with other targets in Beach Head as well. Ed.)
Joby Taylor
Amarillo, Texas

Beyond Castle Wolfenstein: If you get killed, caught or blown up, but don't want to start over, just wait for the gray screen to appear then hit RUN/STOP and RESTORE. Then type RUN and press RETURN. Be ready to go with your joystick, because you'll be put right back into the action before your tragedy took place.
Jayson Olson
Address Unknown

Beyond Forbidden Forest: It is safer to keep moving when battling the worms (Vermes). When battling the Megatherium, move left to right, shooting him the second you see him.
Jeff Lohmeier
Ferndale, Michigan

Blue Max: This is one of the more difficult games for the 64. If you hit as many special targets as you can, whatever the cost, you'll advance to the higher levels more quickly.
Stephen Legate
Los Alamos, New Mexico

Bop 'N Wrestle: Walk right up to your opponent, grab him and give him a head butt. While he's staggering, give him a quick kick and do it again. Repeat this until his energy's depleted then give him the finishing move of your choice.
Chris A. Bonk
Glenavon, Saskatchewan
Canada

Boulderdash: For immunity from Flies, enter POKE 29004,96. For unlimited time, POKE 29885,96. For an unlimited number of lives, POKE 35589,96. Start the game with SYS 36431.
Lucy S. Terrier
Alton, Illinois

Bounty Bob Strikes Back: On level one after collecting the flower pot, press F7 to warp to level seven. On level five after collecting the coffee pot, press F7 to warp to level eight. You can continue this after every fourth level.
Ernest Bonhomme
New York, New York

Bruce Lee: In the first room with the red background, there's an orange spot between the explosive and the black box on the ceiling. Jump on it and you will be safe from anything.
Marshall Evans
Address Unknown

Bruce Lee: You can get points very quickly by dropping on top of the black Ninja several times in succession.
Chris Beyer
Address Unknown

Castle Wolfenstein: For a miraculous escape, maneuver yourself to the bottom of the screen and unplug your joystick. Plug your paddles into Port 2 and press both buttons simultaneously. The screen will change to a castle and drawbridge with a full moon, and you will be outside! It works every time.
J. P. Julian
Address Unknown

Castle Wolfenstein: When your man dies or is caught, or if you want to reset a room, just hit RUN/STOP and RESTORE simultaneously. When the screen clears and the READY prompt appears, quickly type SYS 2068 and press RETURN. You'll be back in the same room, but alive.
Sander Hicks
Falls Church, Virginia

Castles of Doctor Creep: You've no doubt heard the soundtrack in the demo mode of this game, but did you know there are eight more songs on the disk? To hear them, start a game then end it. (The quickest way is to hit RESTORE while the map screen is up). The demo mode will start again, but this time it will load the next song. Just keep up this process to hear them all.
Jon Desak
Monessen, Pennsylvania

Championship Baseball: Can you imagine a game with 20 runs and only five hits? When you have men on base and the computer's pitcher is winding up, just freeze the game with the F5 key. Then you're free to walk your runners in to score, without anybody to stop you! To resume normal play, just press the F7 key.
Robert Wu
Monterey Park, California

Colonial Conquest: Russia's armies are extremely cheap, and you'll be able to conquer a lot of land with them alone.
Lance Gater
Trenton, New Jersey

Commando: When you get to the end of the third level, stay next to the side of the door and start firing toward the door. Anybody who comes through that door will be instantly destroyed.
Myong Paek
Portland, Oregon

Commando: At the end of the first level, open the doors, stand at the corner of the right door, face left and open fire. You'll complete the level safely and easily. For the third level, grenade the top two men in the fortress, stand at the corner of the right wall, face left and fire continually. You'll win the game every time.
Nathan Gibbs
Fernandina Beach, Florida

Conan: On the first level do not kill the bat. Climb to the very top on the right side and jump in the tree. Run and jump against the castle, walk all the way right and pull down. This will give you an extra man.
Nathan Gibbs
Fernandina Beach, Florida

Decathlon: You cramp-handed runners of the 1500 meters need worry no more. You can beat the computer in the sprint part by pausing the game when he first starts to sprint. When you start again, the computer will run slowly but you can sprint. When done correctly, this will give you a world record.
Paul Jordan
Glenwood, Illinois



Elite: If you have trouble shooting at distant enemy ships, just use the target missile function to aim at the ship. When you hear the beep, start blasting away with your lasers.
Myong Paek
Portland, Oregon

F-15 Strike Eagle: If your fuel runs out, just press the "A" key (Afterburners command) repeatedly. With each press, you'll hear a "poof" sound and your speed will increase. Apparently the afterburners cut in for an instant before the game figures out that you're out of fuel. The faster you press the key, the faster your speed and altitude will increase. It's a bit tiresome, but it beats crashing into the earth.
Bob Keller
San Ramon, California

Continued on pg. 116

Software "Fan"atics

by John Jermaine



LESLIE ROGALSKI

My quest for the perfect microcomputer feature has led me on many unusual expeditions, but I always seem to make the same mistake. Most of my work is too serious in nature. To remedy this, here is a lighthearted collection of fan-related stories that have taken place deep within the Commodore 64 software industry. You won't hear tales of programmers having their clothes ripped off by crazed game groupies, but I think you'll find these tales amusing, entertaining and solid proof that even software people are human too. By the way, most of the names in this feature have been dropped to protect the guilty.

Special Fans

Noreen Lovoi, Public Relations Manager for Epyx, Inc.: "When you talk about software 'Fan'atics, two significant stories come to mind. Several years ago, a young male fan wrote us a note that immediately caught my eye. This seven- or eight-year-old individual wanted to create a comic strip featuring the little guy from our popular *Jumpman* program, and he knew enough about the laws of the land to ask permission to use the character. Unfortunately we couldn't honor his request, but it illustrates the fact that even our younger followers have more knowledge than we give them credit for.

"My second tale takes place about a year after *Summer Games* hit the market. Epyx received a very nice letter from a teenaged admirer who really enjoyed *Summer Games* and wanted us to generate a sequel to it. He also included an inspirational list containing the names of every sport and athletic event known to man. It was an amazing coincidence, but our design team was hard at work on *Summer Games 2* at the time. Some of the programmers thought the existence of the list could possibly cause problems at a later date, since all of the events for the new game were listed on the sheet. This meant that the author of the note might claim our people didn't pay him for certain ideas and information he supposedly brought to their attention. Someone finally asked for some legal advice on the matter and was advised not to worry about the list. *Summer Games 2* was completed as planned, and we never heard from our admirer again."



Hooked On The Game

Debbie Minardi, Customer Service Representative at Electronic Arts: "During October of 1986 two young followers of *Bard's Tale* had an interesting experience. The Customer Service department of Electronic Arts provides *Bard's Tale* game hints for users who call in to request them. Jason and Jordan from New York were calling me every day for new *Bard's Tale* clues. About six weeks later, I received a call from a mysterious gentleman inquiring who we were and what we did here. He had just received a $300 phone bill, and the EA number appeared prominently on his billing sheets. At this point in the conversation, I asked him if his children had a copy of *Bard's Tale*, and of course he replied they did. I decided to take a chance and find out if Jason and Jordan were his children. It's a strange world; he did have a couple of kids with those names. The man suddenly went into shock because he realized his children had spent over $250 calling long-distance to request hints for solving a computer game. I told him they would probably complete their quest in a day or so, at the rate they were progressing. He laughed for a moment and said they might not live that long. Thinking back on the incident, I remember unconsciously adding insult to injury by telling him a *Bard's Tale* clue book was available for $12.95. Later that same afternoon, Jason and Jordan called again to tell me they had just completed the game. I didn't have the heart to tell them the fate that awaited them when their father got home."

Strip Poker Players

Arthur Walsh, President of Artworx: "Artworx's *Strip Poker* program has been the prime source of many fan letters and phone calls for the past several years. Some time ago, a guy wrote to us to say *Strip Poker* was his favorite computer program, and people came over all the time to play it. This in itself wasn't so unusual, but I guess I forgot to tell you that the gentleman was blind. His friends came over to play the game, they gave him information about each situation that arose, he made his own decisions, and someone would input that data into the system. Isn't it strange that a microcomputer game could bring friends closer together under these unusual circumstances?

A large number of letters state that consumers in the field have made their own pictures for the *Strip Poker* game, but found they couldn't insert their graphics into the program. When the game was initially being created, we were afraid of someone trying this stunt. I envisioned a clever young hacker, somewhere out there, putting some very distasteful pictures within the framework of our program. Once that was done, pirate copies of his creation would be distributed far and wide, and eventually the public would be under the impression that Artworx was getting into the pornography business. To prevent such a catastrophe from happening, we decided to disperse the graphic data throughout the program, making it difficult to see where all of that information is stored.

A recent *Strip Poker*-oriented phone call caught one of the secretaries by surprise. A follower of the game wanted to know if we had ever thought about using digitized pictures of real people as the basis for a new series of *Strip Poker* data disks. We are currently developing a project of that nature, so the secretary informed him of our plans. Before she could get out another word, the guy had offered to send us nude photos of his wife and himself for the project. I don't know how our representative handled the situation, but I'm glad I didn't have to explain to this fellow why we couldn't accept his 'generous' offer."

Adventure Game Experiences

Scott Adams, adventure game programmer: "The most notable piece of mail I've received to date came from a group of fans who were trying to solve my *Adventure Land* text game. To set things up for this interesting tale, you need to understand how one of these early adventure programs operated. The computer would print out a text situation on the screen, and the participant responded by typing in a two-word command like 'Go North' or 'Get rock.' What the player didn't know was the fact that the interpreter of the program only recognized the first three letters of each word the user typed in as a response. Getting back to *Adventure Land*, the player encounters a bear in

the game that he must get rid of. Logically I reasoned you would have to scream or yell to get a bear moving. The computer needs to see the 'scr' of 'scream' or the 'yel' of 'yell' to activate the next line of the adventure. Anyway, our followers had been working on the problem of moving the bear for a long time, but they weren't making much progress. Finally out of desperation, one of those tormented souls typed in 'Screw Bear.' The computer replied 'Bear is so startled he falls off the ledge.' This note kept us in stitches for several hours."

Dave Lebling, Program Author at Infocom: "Naturally we receive tons of mail and a large number of phone calls requesting adventure game hints, but a new breed of fan is searching our work for bugs that we haven't detected. Infocom play testers spend countless hours searching for bugs in each product, but our little group can't possibly type in every word combination before the program is shipped out to consumers. In *Starcross,* for example, a unique situation existed. A beam of light is present in the game which would set off an alarm when it was interrupted. In order to proceed in the story, the player had to literally attack the beam in a certain way. To make this component of the game respond properly, we had to add a special bit to the program code. It simply told the computer that the light beam was attackable. Unfortunately a quirk in the development system we were using simultaneously stated that the beam was also a person. This new development presented a unique problem for the computer because it couldn't locate the beam of light's personality data which simply didn't exist. The system eventually drifted down to the default code and somehow created a form of generic personality there. This all boils down to the fact that you could type in 'Light beam go north,' and the system would respond 'The light beam walks north,' or I could say 'Light beam, hello,' and the computer would reply 'The light beam nods its head in greeting.' The aquarium in *Zork II* displayed this same strange form of artificial life. That was a very common bug in my earlier games, because I like to use things in my programs which contained the infamous magic bit. After a while we isolated the problem, due to the mail we received from our loyal clientele, and split those two attributes permanently. Now there is one bit in the development system that says this is a person, and another one which states you can hit, attack, cut, etc. an item. You might expect the letters from these software sleuths to start out with something like 'Guess what I found in your game, you stupid people,' but most of them expressed the excitement of the user, where he or she had discovered an aspect of the program that none of us knew anything about."

> "The man went into shock when he realized his children had spent over $250 calling long-distance to request hints for solving *Bard's Tale*.



Avalon Hill Confronts The Public

Jackson Dott, Director of Microcomputer Art at Avalon Hill Games: "It's been an interesting experience to sit back and watch how the public reacts to some of our ideas. In 1985, for example, one of our largest mid-west distributors told us to remove all of our products from his inventory which contained fantasy role playing, magical creatures, spell casting, etc. We believe this incident occurred because of local pressure from religious groups in the area.

"A Russian Counsel even contacted us once. He didn't appreciate the way we described the Soviet Army of 1943 in the *Dnieper River Line* program. Our research had shown them to be a confused group with poor leadership, so that is the way they were depicted in the game.

"We were once in 'hot water' with certain feminist groups. A while back, we ran an interesting magazine ad that definitely caught their attention. It contained the photo of a beautiful raven-haired woman, dressed in a long black gown. This outfit revealed some cleavage as she held boxes containing *Fortress of The Witch King* and *Parthian Kings* in her hands. Hence the caption 'Which King?' When several feminist groups saw this promotion, they asked us to discontinue the ad. They claimed it presented an uncomplimentary image of women to the youngsters who read the computer magazines. Even though most of our products are designed for adult minds, we decided to keep peace with these groups by dropping the ad campaign entirely. Avalon Hill recently released *Dr. Ruth's Computer Game of Good Sex.* We expected the subject matter to generate immediate negative comments from certain groups and individuals, but to our surprise everyone seems to like the program."

Did You Hear The One About . . .

Mike Harrison, Communications Manager at MicroProse Software: "People are constantly asking us for manuals they can use with 'pirated' copies of our programs. In the past, individuals have

claimed their manuals were destroyed by earthquakes, fire, dogs, their kids, etc., but some of the tales stand out from the others. One of our followers escaped a fire in his car with a diskette and his life. Unfortunately the manual for the program was lost in the blaze. This person wanted a replacement manual for his software so badly that he sent us a series of photos of the burned-out auto. Another customer has discovered a new toy for his dog. He sent us one of our diskettes covered with teeth marks.

"Bill Stealey (President of Microprose) likes to tell the story of a fan who asked Bill to get him an appointment at the Air Force Academy in Colorado Springs. This individual said it was okay if Bill couldn't honor his request, and just in case it wasn't possible, he asked Bill to please send him some money for his scholarship fund.

"Andy Hollis also has a sense of humor. As he was programming *Silent Service*, he decided to add a secondary form of software protection. If an individual tries to copy that game, a new feature appears on the original diskette: the pants of the submarine captain fly up over his head. You would be surprised how many people call and write to us describing this phenomenon. It tells us immediately what has taken place."

> "One of our followers escaped a fire in his car with a diskette and his life. Unfortunately the manual for the program was lost in the blaze."

Dragonslayers Inc.

Richard Garriott (Lord British) of Origin Systems, Inc.: "In recent months three copies of *Ultima*-related programs have been returned to us with a letter from the owners stating how much they have enjoyed playing the games. The reason for returning the software: their spouses threatened to file for divorce if they didn't devote more time to them and less time to the programs. One of our young female followers was anxious to see *Ultima IV* hit the market. She sent us a really nice drawing depicting a female warrior with her foot planted firmly on the chest of a recently slain dragon. The caption read 'The whereabouts of *Ultima IV*, or you will be next.' I hope the person who sent the picture is reading this feature because it provided us a few laughs during a hectic day. Thank you very much, Ms. Dragonslayer.

"We also have a person we call our pet dissatisfied customer. This individual has played every *Ultima* program to date and finds each one more difficult to complete than the last one, so he starts writing me hate mail to vent his frustration as he plays the game. His comments include: 'This is the hardest game in the world, I can't play it; the programmer must be a total idiot,' or 'I just don't understand why anybody would want to buy this game.' My 'friend' writes me a series of uncomplimentary letters while he continues to advance through the story of the program. Once the final challenge has been solved, he writes me a completely different note stating how much he enjoyed the game and includes a check for the next one (we always return the check because it usually arrives well in advance of the next program's release). Anyway Trip Hawkins, president of Electronic Arts, recently flew in to visit us at the Origin Systems office in New Hampshire. We showed him our wall of unusual fan mail and naturally he read the infamous series of notes we received from our notorious customer. After Trip had returned home to his office in California, he was amazed to discover a note from this same individual criticizing one of their products. So Trip sent this guy a flamboyant letter telling him how honored he felt to receive a note from such a famous person. After all, a special section of the Origin Systems letter wall had been reserved for his comments about their products. Trip also sent this character some free Electronic Arts software to commemorate the fact that he was now a recognized software critic on both coasts."

*(**Editor's Note:** Origin Systems and Electronic Arts have recently discontinued their business relationship.)*

Good Sports

Scott Orr, Vice President, Sports Development at Activision: "A special breed of people seems to be drawn toward playing sports-related software. One of our loyal fans has tried to earn the right to join the Star Leaguer Club for the past two years. To become a member of this exclusive organization, a person has to beat the computer in a game of *Star League Baseball.* To reward this individual for his continued effort to meet his goal, we sent him a copy of *Championship Baseball*, our latest baseball program. I hope to get a progress report from him soon. Speaking of *Championship Baseball*, a cruise ship director called us a while back telling us about how popular the program had become aboard their ship. Most of the crew were involved in the ship's microcomputer baseball league, and they had compiled statistics covering several hundred playings of the game. We hope this gentleman will send us that information.

"Willie Nelson's manager recently contacted us, wondering when the follow-up course diskettes for *Championship Golf* program would be available. It seems that Willie and his band play *Championship Golf* in their specially-equipped vans all the time. If you're reading this article, Willie, please send me your best scores."

> "A Russian Counsel even contacted us once. He didn't appreciate the way we described the Soviet Army of 1943 in the *Dnieper River Line* program."

Activision Fans

Melinda Mongelluzzo, Public Relations Coordinator at Activision: "I don't know much about the fans of other software, but our customers never cease to amaze me. Several years ago, when we were manufacturing game cartridges, a woman had the idea that they would run in her VCR. She contacted us one day because she just couldn't figure out how to plug that small cartridge into the large slot of her video machine.

"*Little Computer People* has also been an inspiration for strange phone calls. Everyone wants to know what is hidden inside the upstairs closet of the house because the little man looks so happy when he comes out. Most fans seem to have one of three theories on the matter: (1) his girl friend lives in there, (2) he keeps liquor in the room, or (3) someone's throwing a party in the chamber. I would like to introduce another possibility. Maybe the closet is a lounge for the other little people who can't show up in the computer all at once.

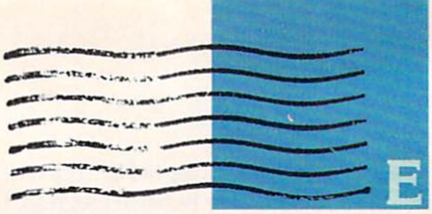
"I could write a book about the diskettes that are sent back for replacement. One was returned because the family dog had

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Mail Order Mania

by Gary V. Fields

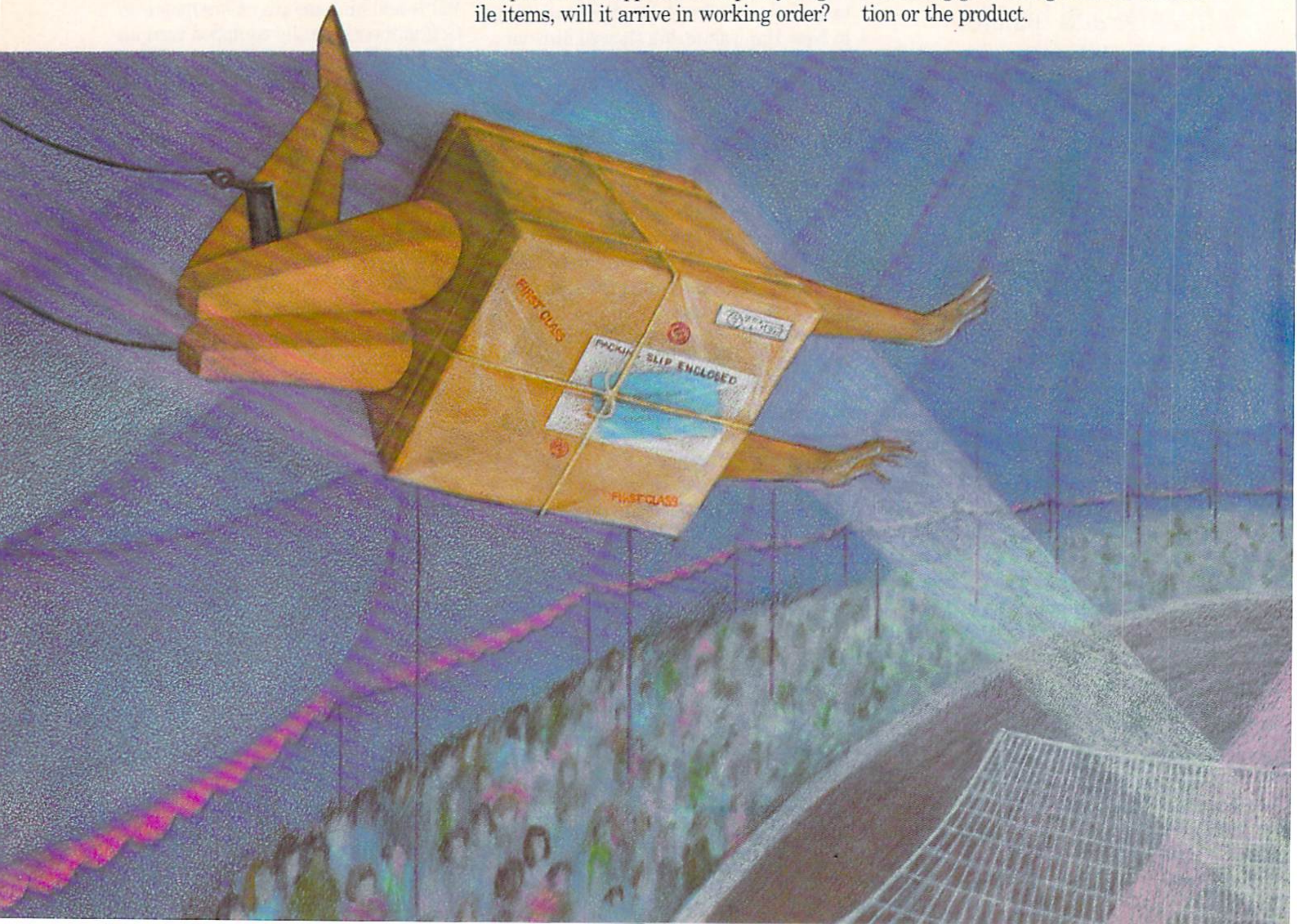
When ordering products by the mail, "Caveat Emptor" is the rule. By following a few simple guidelines you can avoid the pitfalls of mail-order buying and save time and money.



Everyone has been in this situation. You finish reading a magazine review or advertisement about a particular product and you realize you must have it. So with your checkbook smoking and a check ready to burn buying the thing, you rush down to your local "We Got It All" store and what happens? The fire goes out when the clerk tells you "We don't have it, we don't know when we'll get it and to tell you the truth, we never heard of it."

The most frustrating time that happened to me was in the fall of 1982. The bargain-priced Commodore 64 (only $595) had just been released. It was everything a home computer should be: affordable, lots of memory, color and sound plus a powerful on-board version of BASIC. I knew, and the product reviewers knew, the little 64 was going to be a goliath killer—but none of the local store owners knew it. With no local dealer to buy from, my only alternative was to order my first system from a mail-order house in California. As I waited for the UPS truck to pull up in front of the house I sweated and wondered: computers are supposed to be pretty fragile items, will it arrive in working order? What about the monitor—it was sure to be cracked travelling from the west coast to the east. Or what if the company simply took my credit card number and disappeared? What if they charged me more than they had agreed to over the phone? What if the system never arrived? I had a lot of apprehension waiting for that first delivery—all groundless. It arrived on time, in perfect working order and at the agreed price. In fact, later when I had some problems adjusting the monitor for the best color combination, the salesman was just as friendly and helpful (even though the phone call was at his expense) as he had been when taking my order.

I haven't hesitated to use mail-order distributors since. However, over the years I have learned some do's and don't's to stick with when ordering from out-of-town dealers. The following are observations and suggestions from my personal experiences and advice from specialists involved in the business. If you apply them you should not only save some money and time when ordering from a mail-order distributor but you'll also know what to do if something goes wrong with the transaction or the product.



Mail-Order vs. Retail

Actually, when we refer to "mail-ordering" a product, more often than not it is the telephone not stamped mail which is used to place the order. The "mail-order" tag, used to describe any distributor who ships products rather than sells them across the counter, came into common use just before the turn of the century (while Mr. Bell was trying to get his first patent on a talking device). Most rural Americans were dependent upon large mail-order distributors like Spiegel's and Sears & Roebuck to bring the things on their "wish list" to their front door. Mail-order houses still cater to those customers who live far from the products they need, and in 1988 that often means computer and software customers.

The three biggest considerations which will determine where you buy a product are price, timing and convenience. If you need a product now and a retailer near you has it in stock at a price you think is reasonable—you should buy from them. But the ability to buy across the counter is usually paid for with a larger price tag and limited selection. Mail-order houses know they can't compete with the advantages of immediate possession, so they normally counter with lower prices, larger selections, convenience of ordering and a variety of paying plans. Timing is the only category where they have difficulty competing—most can offer no better than next day delivery.

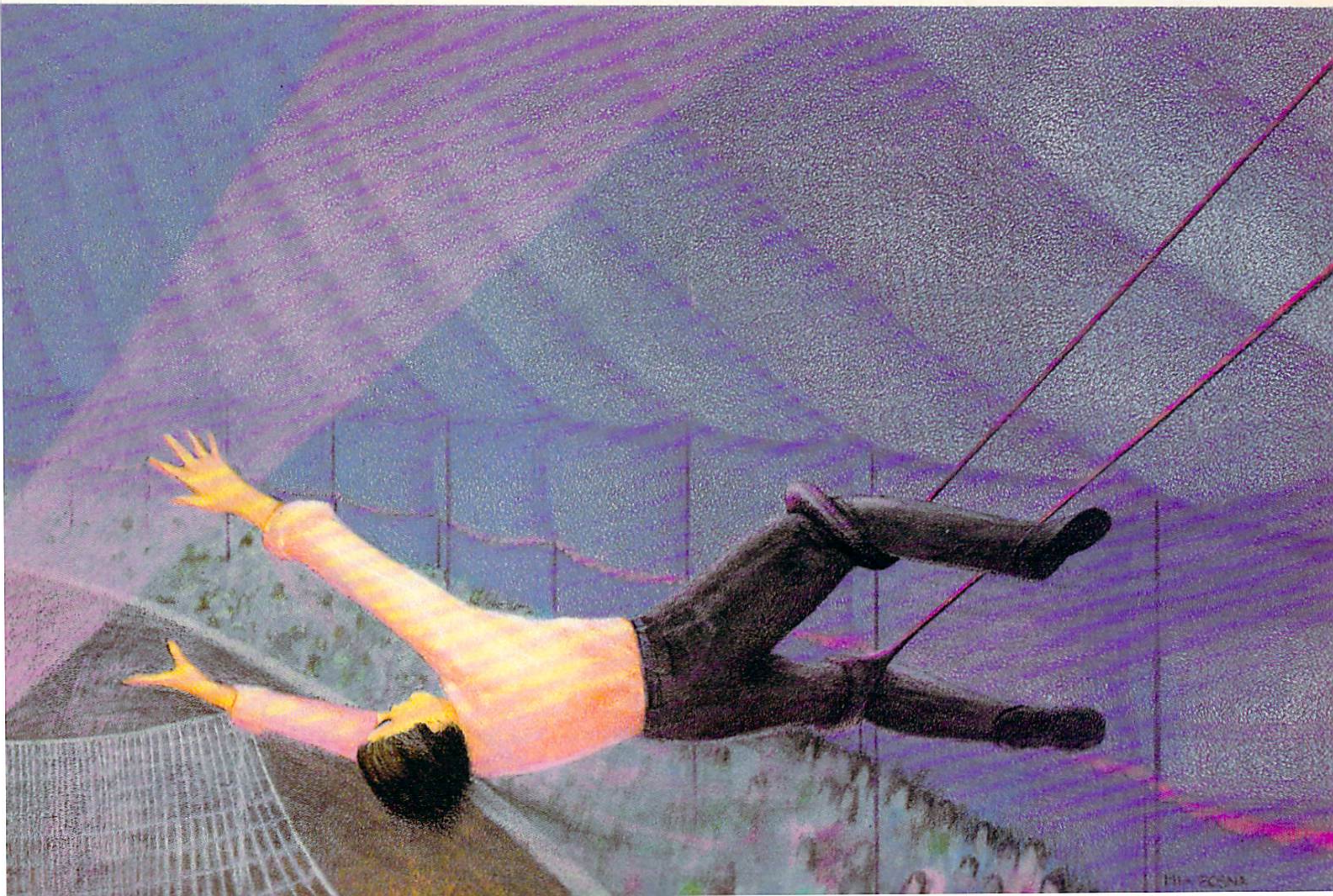
Comparing Prices

If you insist on paying less than the retail price, mail order is normally your best bet. Prices on mail-order products are generally 20-50% lower than even those offered by discount stores. But before you jump at any buy, remember the list price, regardless where you buy, is rarely the price you will pay. Sales tax, whether state, county or city always adds to the actual price. Plus if you order from a store out of town, you'll probably have to pay shipping charges and additional service fees if you pay with a credit card or C.O.D. (Collect on Delivery).

If you order from a mail-order house located out of state, your purchase will be tax free. On an expensive purchase, this savings on tax can add up to a handsome amount. Most mail-order dealers offer toll-free phone numbers for ordering, but if you use one which does not, be sure to include those charges when calculating the actual price of the item. Remember, if you buy locally you must add local and state sales tax to each purchase, and don't forget the cost of getting to and from the retail store. When you order from a mail-order house which is located in your state you still must pay taxes on the purchase.

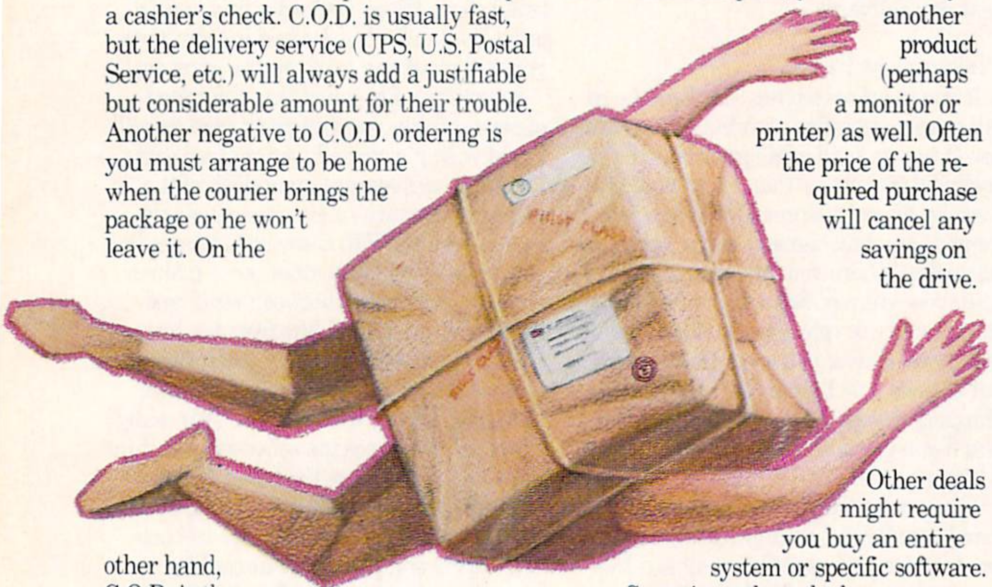
In practice, I've found that the added expense of shipping and credit card fees (if I paid with plastic and was charged extra for doing so) averages around 5% of the sale's price, which in my case equals the local sales tax. With these two charges in effect cancelling each other out, I make a straight comparison between retail and mail-order prices and buy from the low bidder. If I'm not in a hurry to get the product, I can usually save a little more (3-4%) by paying with a check. This really slows delivery since the seller will not ship until the check clears the bank. As a compromise, I send a check only for supplies (things like blank disks, printer ribbons and paper) and pay by credit card for items I need in a hurry. The trouble with paying by credit card is that there is often a 3% or more service charge added to the

MIA BOSNA



purchase. And if you delay paying the bank when the credit card bill arrives, the bank will add another 1.5% monthly charge until it is paid. Needless to say, I pay my credit card bills on time and avoid inflating the price of my purchase.

Most dealers will ship C.O.D. or accept a cashier's check. C.O.D. is usually fast, but the delivery service (UPS, U.S. Postal Service, etc.) will always add a justifiable but considerable amount for their trouble. Another negative to C.O.D. ordering is you must arrange to be home when the courier brings the package or he won't leave it. On the other hand, C.O.D. is the safest method of payment since money doesn't change hands until the product is delivered. Using a cashier's check drawn from your local bank usually speeds things a bit (the seller doesn't have to wait for it to clear the bank before shipping), but there is still the delay waiting for the check to get to the mail-order house.



So, for me at least, the most sensible way to order is with a credit card. It combines speed, convenience and reasonable cost plus one other advantage. If something goes wrong with the transaction (no delivery, wrong item, wrong charges, etc.) the bank which issued the card will normally help you defend your rights and funds.

When shopping, beware of unbelievably low prices—often they are intentionally misleading or disguised package deals.

A misleading ad might list an item which is actually a used unit which has been repaired or a clone (off brand/look-alike copy) of the original. The explanation of the switch is normally noted in the fine print somewhere else in the ad. While the products and the prices may be satisfactory, unless you read and understand the entire ad before ordering, you may be in for a surprise when your order arrives. There is nothing wrong with buying a rebuilt or cloned product—most users would never know the difference by looks alone—but if you do buy such a product, make sure you understand what warranty comes with it and what company will enforce the warranty.

An example of a disguised deal would be a dealer selling a disk drive at a price 20-30% less than anyone else's. The catch is, before you can buy the sale item at the below-wholesale price, you have to buy another product (perhaps a monitor or printer) as well. Often the price of the required purchase will cancel any savings on the drive. Other deals might require you buy an entire system or specific software. Sometimes these deals can save you money and give you exactly what you need, but often they force you to buy a peripheral or software with which you'll never be entirely happy. An extreme victim of this sale technique is a blind computer user I know. He bought two entire systems including monitors—even though he can't see the screen and the speech synthesizer he relies upon uses an external speaker, not the monitor's. But the distributor's deal was computer and monitor or nothing. He's trying to sell the monitors, and if he can, the buy was a bargain. If not, he lost both money and time on the deal.

When you see an ad that lists "Call for Price" in the price block you can usually assume you have found a business which is willing to negotiate a final price. Don't hesitate (providing the call is toll-free) to call and ask the price. I always make the call to these distributors last—after I've checked the firm price of other mail-order houses who list their prices. This way I know what price he needs to meet or beat to get my business.

If you've seen an item advertised cheaper somewhere else, let the salesperson know. Often they will adjust their prices to match or beat that of their competition if they know. But don't try to get them to change their price by misleading them with deflated competitive prices that don't exist. These people always know what the bottom price line is, and they won't cross it—not for you, not even for their mother. If you try to force a price lower than is financially possible, more often than not, you'll end up eating your words or buying, out of embarrassment, from a more expensive distributor.

Don't assume the price listed in the magazine ad is set in stone. Most sellers include a disclaimer which states the printed price on a product may change. I've never found this disclaimer used as "bait and switch" scheme. Instead it is the mail-order house's honest attempt to be competitive. His deadline for the ad may be a month or even more, before the magazine is published and distributed. His price (from the manufacturer) may change between the time he gives the magazine's ad department the quote and the time you read it. But as often as not any change may be lower rather than higher, in which case he may offer the product at a price lower than listed. The rule then is to always ask the current price. If the salesperson gives you a quote higher than that listed, mention the ad and the listed price. Nine times out of ten they'll sell at the lower price in order to get your business. You have the advantage here—when you hang up, the salesperson can't call you back to reconsider, so they are usually eager to agree upon a price rather than hear the phone line die along with a sale.

Selection

A real advantage of buying by mail order rather than retail is the wide selection of products from which to choose. To understand how these stores can carry more products than national retailers you have to understand how they operate. First, mail-order houses normally carry specialty items, appealing to only a specific section of the population. The people who "enter" a mail-order computer store are looking for computerware only—not snow tires, perfume, washing machines or chocolate. So if a mail-order owner wants to make a sale, he or she has to have a good selection of what the buyer wants. By the same token they don't have to stock general interest items. They know their customers and what they want.

Next, they don't necessarily have to stock everything they sell. Most buy from large wholesale warehouse dealers like the Computer Software Service in Illinois. When they receive orders for items they don't have in stock, they collect them until the end of the day and order it all from their wholesaler. The advantage to this arrangement is that the mail-order house doesn't have to stock specialty items that

only a few customers will need, yet they can still fill orders for those items fairly quickly.

Not only do they carry a wider selection (usually if you can identify an item, they can get it for you), they are normally the first to stock and offer a new release for sale. This eagerness to offer the newest items can occasionally get them in hot water. If you've worked with computers very long you have heard the term "vaporware" mentioned. Mail-order houses get stung by this annoying insect more often than any other seller. What happens is a developer promises a product on a certain date. The mail-order owner assumes the developer will fulfill the promise. Now he faces a timing dilemma. In order to let potential buyers know they will be selling the product they must coordinate the appearance of their ad with the publishing date of the magazine and the date the developer promised the product would be ready to market. Unfortunately, the release of the product is often delayed, or worse is cancelled, leaving the mail-order house with an ad for a product which doesn't exist—vaporware. Normally the problem is just a frustrating delay and the product eventually arrives. But in the meantime the seller has to answer a lot of irate callers wanting what's in their ad.

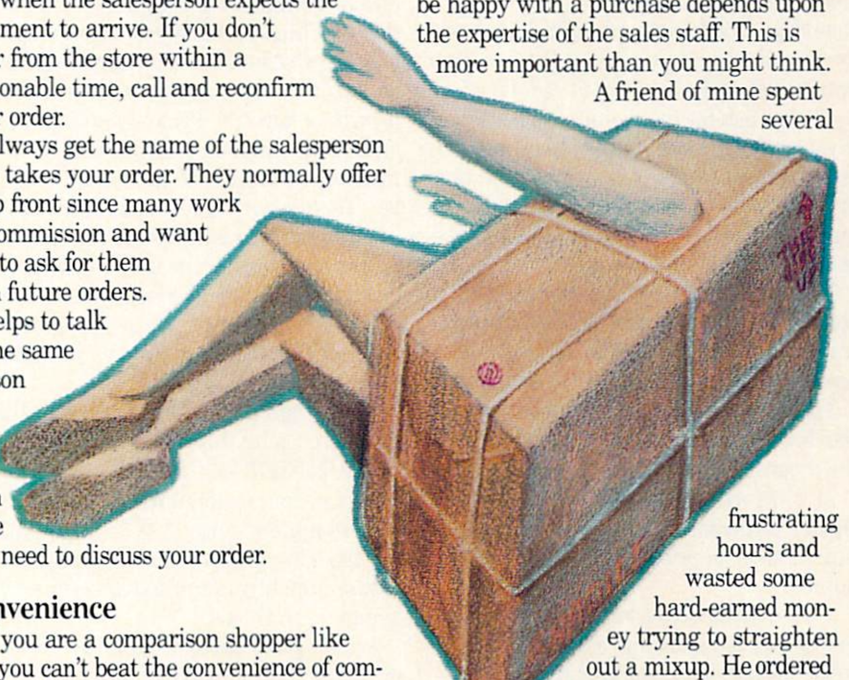
The dealer can also lose money on delayed products. This exact scenario was played out when *Simon's BASIC* was announced. I called a dealer whose ad claimed he had it in stock. He apologized for the error, explained the release date had to be pushed back and offered to put me on a list for a copy as soon as it arrived. A month later a salesperson called to tell me they had finally received the first shipment but the wholesale price was nearly double what they had expected. But like a good store owner not wanting to lose a future customer, they explained that if I still wanted the cartridge they would ship it to me at the originally-advertised price and absorb the loss. I happily agreed.

Speed

I've never seen anyone who used computers who didn't want a response in a hurry. After all, that's one of the primary reasons we use computers—we are in a hurry to get our jobs done. So when I want (or need) a product, I'm usually a little more than impatient to get it into my hands. That is another reason why I normally turn to mail-order houses when a newly-released product is involved. Even though it may take two to ten days to get my order delivered, that's usually weeks less than waiting for the local discount or department store to get the product in stock—providing they even decide to stock it.

To minimize delays, the buyer should always ask the dealer if the product is in stock. If it's not, you may want to check with other mail-order houses before putting your name on a waiting list. Distributors often allot a certain number of new products to a dealer until manufacturing can catch up with demand. If you put your name on a list that is already bursting, you may have to wait for the second or even third shipment before your name moves to the top. Ask how many orders they will have to process before they can ship yours. Then check with other dealers. It is not unusual to find one dealer out of stock and on the next call find one who can ship the same day. Don't hesitate to call and ask—after all that's one of the conveniences of ordering by phone—you can do a lot of pricing and shopping in a hurry. If you do put your name on a list, ask when the salesperson expects the shipment to arrive. If you don't hear from the store within a reasonable time, call and reconfirm your order.

Always get the name of the salesperson who takes your order. They normally offer it up front since many work on commission and want you to ask for them with future orders. It helps to talk to the same person each time you need to discuss your order.



Convenience

If you are a comparison shopper like me, you can't beat the convenience of comparing prices by simply flipping pages rather than driving from store to store. Plus there are always more prices and products to compare between a variety of mail-order houses than the limited number of dealers listed in your yellow pages. In fact, if you come from a medium or smaller city (like my hometown, Asheville, NC) the only way to comparison shop is by mail order.

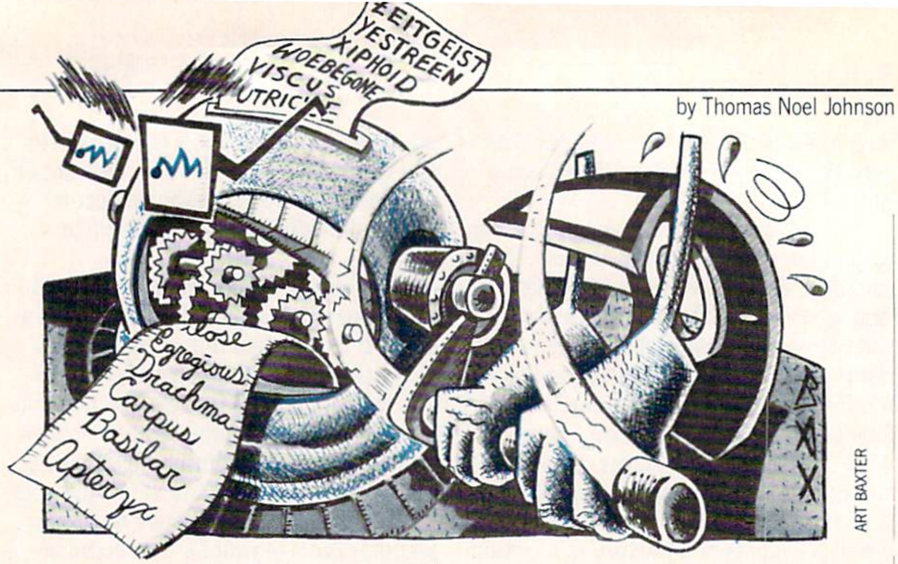
Time (and the lack of it) is always a problem around my house. During the time it takes me to drive downtown, wait for a salesperson to find the time to wait on me and then drive back home, I could have compared the prices of a dozen or more mail-order houses, placed my order, watched the six o'clock news and finished dinner. So for me at least, the convenience of buying by phone more than saves me money; it saves time.

How to Select a Mail-Order Distributor

There is nothing more frustrating than trying to communicate with a person who doesn't speak your language. While more and more people are becoming knowledgeable about computers and computer terms, still only a minority of the populace is fluent. When I place an order or want information about a product, I expect the salesperson to know the product and be able to discuss it with me. If they can't I usually ask to speak with someone else. If they can't get someone to the phone who can help me, I write that store off my list of potential buying places. I've found that a good indication of whether I'm going to be happy with a purchase depends upon the expertise of the sales staff. This is more important than you might think.

A friend of mine spent several frustrating hours and wasted some hard-earned money trying to straighten out a mixup. He ordered *geoDex* (and even spelled it letter by letter) but instead received GEOS *DeskPack*. To the salesperson there was no difference between the two, but to my friend there was a great deal of difference. Because the salesperson didn't understand the difference between the two programs my friend had to repack and ship the wrong program back (at his expense), make three long-distance phone calls (at his expense) and wait another two weeks for the replacement program to arrive.

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by Thomas Noel Johnson

VOCAB

The Versatile Study Partner for the Commodore 64

The serious study of vocabulary, whether for school or for personal enhancement, demands a great deal of work. Many diverse study techniques have been suggested for learning vocabulary, but in the end, all include searching for definitions, recording them and reviewing them over and over until they become fixed in your mind. There is no magic way to do this, but learning anything becomes easier when you have someone to interact with and quiz you.

The computer is the ideal assistant for this task; it never tires of the repetition and will continue to drill you as long as you need. A program for this purpose should be more than just a data base that stores information and spits it back. You should be able to converse with it and ask for help. During a quiz meant to teach, the program should allow you to see the original list or ask for the definition of a word. If your mind goes absolutely blank, why shouldn't you be able to ask for a glimpse of the answer without interrupting the quiz? Remember, this program helps you learn; it doesn't evaluate you.

VOCAB turns the 64 into a very helpful partner for learning new words. Many extra features are included so you can concentrate on the words—not the computer.

1) Help windows on each page supply the directions needed to make full use of the program.

2) Word wrap is usually not found in BASIC programs. VOCAB uses this feature in order to print clear and neat definitions.

3) A sophisticated error handler lets you concentrate on learning vocabulary instead of worrying about a blinking red light on the disk drive and cryptic error messages on the screen. If a request is made for a file which does not exist on the disk, the screen will simply ask for another choice.

4) One-key movements within the program allow for easy utility. Function keys are programmed to move from screen to screen in a logical order.

5) Print-out capabilities enable you to print out a list or supply two different types of quizzes.

6) A color selector lets you choose the colors. Researchers have found pleasant colors to be an important psychological asset to learning. Why not use this factor to your advantage?

The first screen asks if you desire a certain file. Answering with a "Y" activates the Quiz Mode, letting you choose from any of the sequential files already saved. An "N" tells the computer that you want to write a new file. Personal ability and preference will help you to decide how many words should be included in each list. The mastery of ten words per list is a comfortable goal with which to start. (When saving files, the use of numerals for titles keeps the files in good order and makes for easy recall. Keep a separate disk for VOCAB so that plenty of space will be available for files.)

Notice that a "Q" will let you quit the program. Using this option, rather than the RUN/STOP key, will automatically close the error channel which protects from computer snags. A "C" will let you use the odd-numbered function keys to choose from any of the sixteen colors available on the 64.

With a great sense of humility, computers know that humans make mistakes, so VOCAB allows for errors when writing to files. If you make a mistake entering the term but have already pressed RETURN, simply enter a "0" as the definition and that single entry will be deleted. Another safeguard in the Writing Mode prevents you from advancing if the RETURN key is accidently pressed twice. VOCAB deliberately limits the length of definitions to 80 characters. Such a limitation forces you to be more concise in writing definitions.

In the Quiz Mode, you are asked to supply the correct term. VOCAB will not accept a misspelling and allows for three wrong answers before flashing the correct answer on the screen. Answering incorrectly triggers a gentle rebuke, but correct responses gain *big* rewards. By following the directions in the windows, you can review the whole list, review the definitions, or request a glance at the answer at any time. (Note that the F1 key calls up the main menu, and the F3 key deletes an answer if you decide it is wrong before pressing RETURN. If needed, use the F3 key rather than the DELETE key, the use of which will form an answer which is unacceptable to the computer.) The quiz presents definitions in a random order, covering each definition in the list before asking if you want to be requizzed. At this point, you may stay with the present list or choose to call up another list without leaving the program.

Everyone has two vocabularies: those words used in conversation and other words that are recognized but not often used. A ten to fifteen minute review of a list each day can produce surprising results. Words will automatically begin to slide into your conversation, helping you to express ideas more fully. Reading will become more enjoyable as "strange words" turn into vivid ideas. After the words on one list become second nature, move on to a new list. Previous lists will always be on disk if you need to brush up. Happy lexicography! ■

Before typing this program, read "How to Enter Programs" and "How to Use the Magazine Entry Program." The BASIC programs in this magazine are available on disk from Loadstar, P.O. Box 30008, Shreveport, LA 71130-0007, 1-800-831-2694.

VOCAB

```
10 POKE 53280,6:POKE 53281,8
   :PRINT CHR$(144):PRINT"[CLEAR]"
   :PRINT CHR$(14)'HCJH
20 DN$="[RIGHT27]"'BDSC
30 OPEN 15,8,15'BHAA
```

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```
40 DIM T$(25):DIM D$(25)
   :DIM C$(25)'DUQF
50 PRINT TAB(15)"[SHFT V,SHFT O,
   SHFT C,SHFT A,SHFT B]"
   :FOR I=1 TO 80:PRINT"[CMDR +]";
   :NEXT'HLFM
60 PRINT"[DOWN2,SHFT T]
   HIS PROGRAM WILL TUTOR YOU ON[DOWN]
   "'BAVL
70 PRINT"VOCABULARY LISTS OF YOUR OWN
   MAKING.":GOSUB 1340'CFRP
80 PRINT"[DOWN4] [SHFT D]O
   YOU WANT TO RECALL A SPECIAL
   LIST?"'BAMP
90 PRINT"[DOWN2,SPACE13,RVS,SHFT Y,
   RVOFF,SPACE2]OR[SPACE2,RVS,SHFT N,
   RVS]":FOR I=1 TO 25:T$(I)=""
   :D$(I)="":NEXT'HSMS
100 PRINT"[DOWN3,RVS,SHFT Q]=[SHFT Q,
    SHFT U,SHFT I,SHFT T,RVOFF]
    "SPC(27)"[RVS,SHFT C]=[SHFT C,
    SHFT O,SHFT L,SHFT O,SHFT R,RVOFF]
    "'CDUH
110 GET RZ$:IF RZ$=""THEN 110'EKPA
120 IF RZ$="N"THEN 170'DGEA
130 IF RZ$="Y"THEN CO=1:GOSUB 1250
    :GOTO 170'GPIF
140 IF RZ$="C"THEN 2010'DHLC
150 IF RZ$="Q"THEN CLOSE 15:END'FGWE
160 GOTO 110'BDBC
170 PRINT"[DOWN2,SPACE5,RVS,SPACE3,
    SHFT H]IT ANY KEY TO BEGIN.
    [SPACE4,RVOFF]"'BAUK
180 GET R$:IF R$=""THEN 180'EIRH
190 IF CO=1 THEN CO=0:GOTO 240'FKPJ
200 IF R$=CHR$(32)THEN 210'EJFA
210 GOSUB 490'BDQX
220 PRINT"[HOME]"'BAVX
230 Q=0:G=0'CFYB
240 PRINT"[SPACE5,CLEAR,SHFT W,SHFT H,
    SHFT A,SHFT T,SHFT SPACE,SHFT I,
    SHFT S,SHFT SPACE,SHFT Y,SHFT O,
    SHFT U,SHFT R,SHFT SPACE,SHFT D,
    SHFT E,SHFT S,SHFT I,SHFT R,
    SHFT E] [SHFT F,SHFT O,SHFT R,
    SHFT SPACE,SHFT L,SHFT I,SHFT S,
    SHFT T] # "LD$"?[DOWN]"'BDKY
250 PRINT TAB(10)"[RVS,SPACE2,SHFT F]
    7=[SHFT R,SHFT E,SHFT V,SHFT I,
    SHFT E,SHFT W,SPACE2]":GOSUB 1340
    :CL=0'EMQM
260 PRINT"[DOWN,SPACE8,CMDR P18]"'BAKQ
270 PRINT"[SPACE8,RVS] [SHFT S,SHFT P,
    SHFT A,SHFT C,SHFT E,SHFT SPACE,
    SHFT B,SHFT A,SHFT R] = [SHFT Q,
    SHFT U,SHFT I,SHFT Z] [RVOFF]
    "'BAAQ
280 PRINT"[SPACE22,DOWN]":GOSUB 1340
    :PRINT"[SPACE9,DOWN,RVS]OR[RVOFF,
    DOWN]"'DGKM
290 PRINT"[DOWN,SPACE5]
    1) DIFFERENT LIST?"
    :PRINT"[DOWN,SPACE5]
    2) PRINTED COPY OF LIST?"'CBRS
300 PRINT"[DOWN,SPACE5]
    3) WRITE NEW LIST?"'BAFD
310 PRINT"[DOWN,RVS,SHFT Q]=[SHFT Q,
    SHFT U,SHFT I,SHFT T,RVOFF]"'BAPD
320 GET CH$:IF CH$=""THEN 320'EKCD
330 IF CH$=CHR$(136)THEN 1870'EMVF
340 IF CH$=CHR$(32)THEN GOSUB 810'FKDG
350 IF CH$="1"THEN RQ=0:GOSUB 1250
    :GOTO 240'GPYJ
360 IF CH$="2"THEN 1560'DHUG
370 IF CH$="3"THEN 210'DGOH
380 IF CH$="Q"THEN CLOSE 15:END'FGOJ
390 GOTO 220'BDDH
400 PRINT"[CLEAR,SHFT Y]OU
    HAVE COMPLETED A ROUND OF LIST
    "LD:PRINT:GOSUB 1340'DIRL
410 PRINT"[DOWN2,SHFT D]O
    YOU WANT TO DO MORE? (Y/W/N)"
    :CH$="":GOSUB 1340'DJRL
420 PRINT"[DOWN,RVS,SHFT Y]
     WILL CONTINUE WITH QUIZ[RVOFF]
    "'BAWI
430 PRINT"[DOWN,RVS,SHFT W]
     WILL ALLOW YOU TO WRITE A LIST
    [RVOFF]":PRINT"[DOWN,RVS,SHFT N]
     WILL END[RVOFF]"'CBSQ
440 GET Y$:IF Y$=""THEN 440'EIFG
450 IF Y$="W"THEN 210'DFAG
460 IF Y$="Y"THEN 710'DFHH
470 IF Y$="N"THEN CLOSE 15:END'FFLJ
480 GOTO 440'BDHH
490 PRINT"[HOME,CLEAR]"'BANI
500 PRINT"[SPACE5,SHFT B,SHFT U,
    SHFT I,SHFT L,SHFT D,SHFT I,
    SHFT N,SHFT G,SHFT SPACE,SHFT A,
    SHFT SPACE,SHFT V,SHFT O,SHFT C,
    SHFT A,SHFT B,SHFT U,SHFT L,
    SHFT A,SHFT R,SHFT Y,SHFT SPACE,
    SHFT L,SHFT I,SHFT S,SHFT T]"
    :GOSUB 1340'CFFW
510 PRINT"[DOWN4,SPACE3]
    HOW MANY ENTRIES ";'BBJG
520 INPUT ENT'BDHC
530 FOR W=1 TO ENT'DFTF
540 PRINT"[CLEAR,SHFT N,SHFT O,SHFT T,
    SHFT E]:[DOWN]":PRINT"[RVS]
    '0'=SCRATCH ENTRY[SPACE13,RVOFF]
    "'CBEP
550 PRINT"[RVS] [SHFT D,SHFT O,
    SHFT SPACE,SHFT N,SHFT O,SHFT T,
    SHFT SPACE,SHFT U,SHFT S,SHFT E,
    SHFT SPACE,SHFT C,SHFT O,SHFT M2,
    SHFT A,SHFT S,SHFT SPACE,SHFT O,
    SHFT R,SHFT SPACE,SHFT C,SHFT O,
    SHFT L,SHFT O,SHFT N,SHFT S,
    SHFT SPACE2,RVOFF]"'BAWC
560 PRINT"[DOWN2]"W" TERM: ";'BCEI
570 INPUT T$(W)'BFOH
580 IF T$(W)=""THEN PRINT"[UP]"
    :GOTO 540'FJNM
590 IF T$(W)="0"THEN W=W-1:NEXT'GJTO
600 PRINT"[DOWN]"W" DEFINITION
    :[DOWN]"'BBUE
610 INPUT D$(W)'BFXC
```

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```
620 IF D$(W)=""THEN PRINT"[UP4]"
    :GOTO 600'FJUJ
630 IF D$(W)="0"THEN W=W-1:NEXT'GJDJ
640 NEXT W'BBQE
650 W=W-1'CDJH
660 PRINT"[DOWN5,SHFT D]O
    YOU WANT THIS SAVED?"'BAFN
670 GET RR$:IF RR$=""THEN 670'EKKL
680 IF RR$<>"N"AND RR$<>"Y"THEN
    670'HJBP
690 IF RR$="Y"THEN GOSUB 1200'EHKN
700 RETURN'BAQB
710 PRINT"[DOWN2,SHFT S]AME OR
    [SHFT N]EW LIST?[SPACE3,RVS,
    SHFT S,RVOFF] OR [RVS,SHFT N,
    RVOFF]?"'BAVM
720 GET S$:IF S$=""THEN 720'EITH
730 IF S$="S"THEN Q=0:GOTO 240'FIIJ
740 IF S$="N"THEN Q=0:R=0:ENT=0
    :GOSUB 1250:GOTO 240'IVDP
750 IF S$<>"S"OR S$<>"N"THEN 720'HHLM
760 FOR D=1 TO 1000:NEXT'EHAK
770 G=0:Q=Q+1:C$(Q)=D$(R)'ERUO
780 IF Q=W THEN 800'DFKM
790 GOTO 720'BDIL
800 RETURN'BAQC
810 R=INT(RND(1)*W)+1'FILI
820 IF R=0 THEN 810'DFEG
830 FOR P=1 TO Q'DDSH
840 IF T$(R)=C$(P)THEN 810'DNJK
850 NEXT P'BBJH
860 PRINT"[CLEAR,DOWN,SHFT SPACE12,
    CMDR O14]"'BAUB
870 PRINT"[SPACE12,RVS,SHFT T,SHFT H,
    SHFT I,SHFT S,SHFT SPACE,SHFT I,
    SHFT S,SHFT SPACE,SHFT A,
    SHFT SPACE,SHFT Q,SHFT U,SHFT I,
    SHFT Z,RVOFF,DOWN2]"'BAVW
880 PRINT DN$"[CMDR P11]"'BDWS
890 PRINT DN$"[RVS] [SHFT F]1=[SHFT C,
    SHFT H,SHFT A,SHFT N,SHFT G,
    SHFT E] "'BDGS
900 PRINT DN$"[RVS] [SHFT F]3=[SHFT D,
    SHFT E,SHFT L,SHFT E,SHFT T,
    SHFT E] "'BDVK
910 PRINT DN$"[RVS] [SHFT F]5=ANSWER "
    :PRINT DN$"[RVS] [SHFT F]7=
    [SHFT L,SHFT I,SHFT S,SHFT T,
    SPACE3]":GOSUB 1340'DMQQ
920 PRINT L$" DEFINITION: ":PRINT
    :FOR I=1 TO LEN(D$(R))'GNSO
930 PRINT MID$(D$(R),I,1);'CMDJ
940 IF POS(0)>28 THEN IF MID$(D$(R),I,
    1)=" "THEN PRINT:PRINT'KRNQ
950 NEXT'BAEI
960 PRINT" ":PRINT"[DOWN3]TERM
    : ";'CCTM
970 A$="":T$="":X=0'DINN
980 GET T$:PRINT T$;:IF T$=""THEN
    980'FMNQ
990 X=X+1:IF T$=CHR$(136)THEN
    1350'GPCT
1000 IF T$=CHR$(133)THEN 240'EKKW
1010 IF T$=CHR$(134)THEN FOR E=1 TO
    X-1:PRINT CHR$(20);:NEXT E:X=0
    :GOTO 970'NBLH
1020 IF T$=CHR$(135)THEN 1100'ELGY
1030 IF T$=CHR$(13)THEN X=0
    :GOTO 1060'GNFC
1040 A$=A$+T$'CGHY
1050 GOTO 980'BDQY
1060 IF A$=T$(R)THEN 1130'DLPD
1070 G=G+1:IF G>2 THEN 1100'FKOF
1080 PRINT"[DOWN2]WRONG!![SPACE2]
    TRY AGAIN!!":CL=0'CEQI
1090 FOR D=1 TO 1000:NEXT
    :GOTO 860'FLQH
1100 PRINT"[DOWN2,SHFT A,SHFT N,
    SHFT S,SHFT W,SHFT E,SHFT R]
    :[SPACE2]"T$(R)'BFNB
1110 FOR D=1 TO 1000:NEXT'EHAX
1120 CL=0:G=0:GOTO 860'DKCA
1130 CL=0:PRINT"[DOWN2]"
    :GOSUB 1730'DJWA
1140 FOR D=1 TO 1000:NEXT'EHAB
1150 G=0:Q=Q+1:C$(Q)=T$(R)'ERLF
1160 IF Q=W THEN 400'DFGD
1170 GOTO 810'BDIC
1180 RETURN'BAQC
1190 END'BACD
1200 INPUT"[DOWN]NAME OF FILE
    : ";NF$'BEEA
1210 OPEN 2,8,2,"0:"+NF$+",S,W"
    :GOSUB 1810'EOFC
1220 R=INT(RND(1)*W)+1'FILC
1230 FOR I=1 TO ENT:PRINT#2,T$(I)
    :PRINT#2,D$(I):NEXT:CLOSE 2'HYPH
1240 RETURN'BAQY
1250 INPUT"[DOWN3,SPACE3,SHFT W]HAT
    LIST DO YOU WANT";LD$
    :LD=VAL(LD$)'DMBL
1260 ENT=0:W=0:OPEN 2,8,2,"0
    :"+LD$+",S,R":GOSUB 1810'GWIL
1270 FOR I=1 TO 25:D$(I)="":T$(I)=""
    :NEXT'GRUJ
1280 FOR I=1 TO 25'DEIF
1290 INPUT#2,T$(I):INPUT#2,D$(I)'CPSI
1300 ENT=ENT+1:W=W+1'ELHB
1310 IF ST=64 THEN CLOSE 2
    :GOTO 1330'FKFC
1320 NEXT'BAEX
1330 RETURN'BAQY
1340 FOR I=1 TO 80:PRINT"[CMDR T]";
    :NEXT:RETURN'GINF
1350 PRINT"[CLEAR]#"LD"[DOWN,SPACE8,
    RVS,SHFT SPACE,SHFT I,SHFT N,
    SHFT SPACE,SHFT T,SHFT H,SHFT I,
    SHFT S,SHFT SPACE,SHFT L,SHFT I,
    SHFT S,SHFT T,SHFT SPACE,SHFT A,
    SHFT R,SHFT E] [RVOFF,DOWN3]
    "'BCVR
1360 FOR I=1 TO ENT:PRINT I"[LEFT]
    ) "T$(I):NEXT'FNKJ
1370 PRINT"[DOWN3,SPACE14,RVS]
     F1 = HELP [RVOFF]"'BAXI
1380 PRINT"[SPACE14,RVS] F7 [SHFT Q,
    SHFT U,SHFT I,SHFT Z,SPACE3,
    RVOFF]"'BAFL
```

Continued on pg. 84

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MICROPROSE		LIST PRICE	OUR PRICE
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ORIGIN SYS.	LIST PRICE	OUR PRICE
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INFOCOM		LIST PRICE	OUR PRICE
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Continued from pg. 82

```
1390 PRINT"[SPACE14,RVS] F8
     [SHFT SPACE,SHFT R,SHFT E,SHFT V,
     SHFT I,SHFT E,SHFT W] [RVOFF]
     "'BAEO
1400 GET RE$:IF RE$=""THEN 1400'ELYB
1410 IF RE$=CHR$(133)THEN 1450'EMYD
1420 IF RE$=CHR$(140)THEN 1870'EMCE
1430 IF RE$=CHR$(136)THEN RE$="":CL=Ø
     :GOTO 820'HTWI
1440 GOTO 1400'BECC
1450 INPUT"[DOWN2,SHFT E]NTER
     REQUESTED # AND [RVS]
     [SHFT R,SHFT E,SHFT T,SHFT U,
     SHFT R,SHFT N] [RVOFF]";RQ:PRINT
     :PRINT'DFUR
1460 IF RQ>ENT THEN 1450'DJEH
1470 PRINT"[CLEAR,RVS,SHFT T]ERM
     :[RVOFF,SPACE2]"T$(RQ)'BGQJ
1480 PRINT"[DOWN2,RVS,SHFT D]
     EFINITION[RVOFF]:":PRINT'CBYK
1485 FOR I=1 TO LEN(D$(RQ))
     :PRINT MID$(D$(RQ),I,1);'GYYT
1490 LL=LL+1'CFNI
1500 IF LL>32 AND MID$(D$(RQ),I,
     1)=" "THEN PRINT:PRINT:LL=Ø'JVBI
1510 NEXT'BAEY
1520 PRINT:PRINT"[SPACE5,DOWN3,RVS,
     SHFT P]RESS [SHFT S,SHFT P,
     SHFT A,SHFT C,SHFT E,SHFT SPACE,
     SHFT B,SHFT A,SHFT R]
      TO CONTINUE[RVOFF]"'CBGP
1530 GET RE$:IF RE$=""THEN 1530'ELDF
1540 IF RE$<>CHR$(32)THEN 1530'FLAH
1550 LL=Ø:GOTO 1350'CIGG
1560 PRINT"[CLEAR,SHFT Y]
     OU DESIRE A PRINTED LIST OF
     :[DOWN2]":GOSUB 1340'CFXP
1570 PRINT"A) TERMS ONLY[DOWN]"'BASJ
1580 PRINT"B) DEFINITIONS ONLY[DOWN]
     "'BACL
1590 PRINT"C) BOTH[DOWN]"'BAEJ
1600 PRINT"[POUND]) RETURN TO MENU
     [DOWN2]"'BABE
1610 PRINT"ANSWER: ";'BBFD
1620 GET AN$:IF AN$=""THEN 1620'ELMF
1630 PRINT AN$:FOR I=1 TO 200
     :NEXT'FKLH
1640 IF AN$="A"THEN 1690'DHSG
1650 IF AN$="B"THEN 1700'DHLH
1660 IF AN$="C"THEN 1710'DHNI
1670 IF AN$="[POUND]"THEN 240'DGMJ
1680 GOTO 1620'BEGI
1690 OPEN 4,4,7:FOR I=1 TO EN
     :PRINT#4,I"[SPACE2]" T$(I):NEXT
     :CLOSE 4:GOTO 1720'ICPS
1700 OPEN 4,4,7:FOR I=1 TO EN
     :PRINT#4,I"[SPACE2]"D$(I):NEXT
     :CLOSE 4:GOTO 1720'ICYK
1710 OPEN 4,4,7:FOR I=1 TO EN
     :PRINT#4,I"[SPACE2]"T$(I);" - ";
     D$(I):NEXT'GCJL
1715 CLOSE 4:GOTO 1720'CGVI
1720 OPEN 4,4,4:PRINT#4:PRINT#4
     :CLOSE 4:GOTO 240'FPGI
1730 PRINT"[SPACE4,CMDR @2,SPACE2,
     CMDR @2,SHFT SPACE2,CMDR @2,
     SPACE2,CMDR @2,SHFT SPACE2,
     CMDR @2,SHFT SPACE2,CMDR @2,
     SHFT SPACE2,CMDR @2]"'BAQS
1740 PRINT"[SPACE4,CMDR G,SPACE3,
     CMDR H,SHFT SPACE,CMDR H,
     SHFT SPACE,CMDR G] [CMDR G]
     [CMDR G,SHFT SPACE,CMDR H,
     SHFT SPACE,CMDR G,SHFT SPACE3,
     CMDR G,SPACE3,CMDR N] "'BACR
1750 PRINT"[SPACE4,CMDR G,SPACE3,
     CMDR G,SHFT SPACE,CMDR H,
     SHFT SPACE,CMDR G,SPACE3,CMDR G,
     SHFT SPACE3,CMDR H]-[SPACE2,
     CMDR H,SPACE3,CMDR N] "'BACQ
1760 PRINT"[SPACE4,CMDR G,SHFT SPACE3,
     CMDR G,SHFT SPACE,CMDR H,
     SHFT SPACE,CMDR G,SPACE3,CMDR G,
     SHFT SPACE3,CMDR G,SHFT SPACE3,
     CMDR G,SHFT SPACE3,CMDR M] "'BARV
1770 PRINT"[SPACE4,CMDR T2,
     SHFT SPACE2,CMDR T2,SHFT SPACE4,
     SPACE4,SHFT SPACE2,CMDR T2,
     SHFT SPACE2,CMDR T2,SPACE4]"'BAFU
1780 PRINT"[SPACE3,CMDR +27]"'BAYB
1790 RETURN'BAQJ
1800 REM ERROR CHANNEL'BMSF
1810 INPUT#15,CH,B$,C,D'BMSF
1820 IF CH=Ø THEN RETURN'EDTG
1830 PRINT"[CLEAR]":PRINT"[RVS]"B$"
     [RVOFF]":PRINT#15,"I"
     :CLOSE 2'EJVJ
1840 IF CH=62 THEN FOR I=1 TO 900:NEXT
     :GOTO 50'INOM
1850 END'BACG
1860 REM REVIEW'BGVJ
1870 FOR I=1 TO ENT'DFFL
1875 PRINT"[CLEAR,RVS,SPACE21]"
     :PRINT"[RVS] [SHFT W,SHFT O,
     SHFT R,SHFT D,SHFT SPACE,SHFT B,
     SHFT Y,SHFT SPACE,SHFT W,SHFT O,
     SHFT R,SHFT D,SHFT SPACE,SHFT R,
     SHFT E,SHFT V,SHFT I,SHFT E,
     SHFT W] [RVOFF]"'CBKI
1880 PRINT"[RVS] [SHFT S,SHFT P,
     SHFT A,SHFT C,SHFT E,SHFT SPACE,
     SHFT T,SHFT O,SHFT SPACE,SHFT A,
     SHFT D,SHFT V,SHFT A,SHFT N,
     SHFT C,SHFT E,SPACE4,RVOFF]"
     :PRINT"[RVS] [SHFT F]7 = [SHFT L,
     SHFT I,SHFT S,SHFT T] & [SHFT Q,
     SHFT U,SHFT I,SHFT Z,SPACE4]
     "'CBLI
1890 PRINT"[RVS] [SHFT F]8 =
     [SHFT SPACE,SHFT R,SHFT E,SHFT V,
     SHFT E,SHFT R,SHFT S,SHFT E,
     SPACE8]":PRINT"[RVS,SPACE21,
     DOWN5]"'CBUX
1900 PRINT I"[LEFT]) "T$(I)"
```

```
        :[SPACE2]";'BHUF
1910 FOR J=1 TO LEN(D$(I))'EJDH
1920 PRINT MID$(D$(I),J,1);'CMUH
1930 IF POS(Ø)>28 THEN IF MID$(D$(I),
     J,1)=" "THEN PRINT:PRINT'KRFO
1940 NEXT J'BBDG
1950 GET R$:IF R$=""THEN 1950'EJVL
1960 IF I=ENT THEN PRINT"[CLEAR]"
     :GOTO 1870'FJLN
1970 IF R$=CHR$(32)THEN NEXT I'FHLN
1980 IF R$=CHR$(140)THEN IF I>1 THEN
     I=I-2:NEXT I'KOMT
1990 IF R$=CHR$(136)THEN 1350'ELMP
2000 GOTO 1950'BEMU
2010 PRINT"[CLEAR,DOWN,RIGHT5,SPACE7,
     SHFT C]OLOR [SHFT C]HOICE"
     :GOSUB 2260'CFXD
2020 PRINT"[SPACE2]CHOOSE F KEY:"
     :GOSUB 2260'CFWB
2030 PRINT"[DOWN4,SPACE3]
     F1. BORDER COLOR"'BAIC
2040 PRINT"[SPACE3]F3. CURSOR
     COLOR"'BAYD
2050 PRINT"[SPACE3]F5. CENTER
     SCREEN"'BANE
2060 PRINT"[SPACE3]F7. BACK TO
     MENU"'BAYE
2070 PRINT"[DOWN4,RVS,SHFT S,SHFT P,
     SHFT A,SHFT C,SHFT E,SHFT SPACE,
     SHFT B,SHFT A,SHFT R,SHFT SPACE]
     = [SHFT C,SHFT U,SHFT R,SHFT S,
     SHFT O,SHFT R,SHFT SPACE,SHFT C,
     SHFT O,SHFT L,SHFT O,SHFT R,
     SHFT SPACE,SHFT F,SHFT O,SHFT R,
     SHFT SPACE,SHFT C,SHFT H,SHFT A,
     SHFT R,SHFT A,SHFT C,SHFT T,
     SHFT E,SHFT R,SHFT S,RVOFF]"'BAMG
2080 GET R$:IF R$=""THEN 2080'EJQG
2090 IF R$=CHR$(133)THEN 2150'ELIH
2100 IF R$=CHR$(134)THEN 2170'ELLY
2110 IF R$=CHR$(135)THEN 2210'ELHA
2120 IF R$=CHR$(136)THEN PRINT"[CLEAR]
     ":GOTO 50'GKVD
2130 IF R$=CHR$(32)THEN 2010'EKDC
2140 GOTO 2080'BEHA
2150 GOSUB 2240'BEJB
2160 POKE 53280,C:GOTO 2080'CMXE
2170 GOSUB 2240'BEJD
2180 POKE 646,C'BFPE
2190 PRINT"[HOME,DOWN6,RVS,SHFT T]
     HIS IS THE CURSOR COLOR.[RVOFF]
     "'BAMN
2200 GOTO 2080'BEHW
2210 GOSUB 2240'BEJX
2220 POKE 53281,C:GOTO 2080'CMYB
2230 REM'BARY
2240 C=C+1:IF C>16 THEN C=Ø'GJEF
2250 RETURN'BAQB
2260 FOR I=1 TO 40:PRINT"[CMDR T]";
     :NEXT:RETURN'GIJH
```

END

Software Reviews Dan Dare

Continued from pg. 30

Treen quickly so that it dies.

A few hints are in order here so that you can get the maximum enjoyment from *Dan Dare* with minimal frustration. You start with 24 grenades and need at least ten to destroy Mekon, so use them sparingly. Be especially careful that you release the joystick button on the correct action when you are cycling through them. Choosing the wrong action could waste valuable energy. Find out which actions do waste energy and find alternate ways of performing them; you need all your energy to fight the Treens. In the Prison Complex, get access cards by fighting the weaker guards, if possible. You'll never finish the game the first time in playing; find the exact sequence of actions you need to perform so that you don't waste valuable time.

Dan Dare is the first release in the Amazing Software line and hopefully representative of future products in this line in its low price and excellent design. The nine-person team that produced *Dan Dare* dedicated it to the memory of Frank Hampson, *Dan Dare*'s creator, who died in 1985. I think he would have been very proud of the result of their hard work and careful design. ■

Continued from pg. 34

Next to the three sliding gadgets are the standard brushes and tools. *DigiPaint* has 12 different built-in brushes and several gadgets for drawing lines (including multi-lined drawings), circles, ellipses, squares and rectangles. The final two gadgets are magnifying and scissors gadgets. The scissors option is very flexible because it gives you a real pair of scissors and allows you to cut out a piece of a picture of any shape and then use it as a brush.

The top part of the Toolbox normally contains several gadgets. There is a PickColor option, which allows you to grab any color in the paint area and select it as the current color. There is also a CopyColor option, which will let you replace one of the colors in a register with the currently selected color. There is also a Fill gadget, which will allow you not only to draw filled circles, squares and polygons, but also to fill in any area (even a closed area that has breaks in it because you moved the mouse too fast). A unique feature in the top section of the Toolbox is the Again option. This option will allow you to repeat the last action performed on the painting area. This may sound totally pointless at first, but when you find out that you can change colors or even shading modes, you will realize that Again can be a very powerful tool. Using both the Undo and Again options open up a world of possibilities.

One flick of the right mouse button will reveal that *DigiPaint* also has a complex menu set, filled with more features. *DigiPaint* has five menus: Picture, Brush, Effects, Mode and Preferences. The Picture menu has BASIC functions, including loading, saving and printing pictures. The one option in this menu worth mentioning is the Swap sub-menu. In *DigiPaint*, you can actually have two different painting screens in memory at one time. At any time, you can decide to copy the current painting to the background. Whenever you copy a painting to the background, the RubThrough option appears in the top portion of the Toolbox. When you select RubThrough, any drawing stroke that you perform will not contain the currently selected color. Instead, you will have effectively cut a hole in the foreground. What will appear there is a portion of the picture that was saved in the background, that you have exposed. You can also use the Merge function to combine the foreground and background pictures at any time. The Effects menu contains several options for manipulating entire screens. You can reduce the screen size by half, double it, flip a picture, divide a picture in two, and then switch places with each half of the screen, and soften an image by reducing contrasting edges. The Preferences menu allows you close or open the Workbench screen at any time. Closing the Workbench will free up valuable CHIP memory, which can be in very scarce supply, especially if you are working with *DigiPaint* in the interlaced HAM mode. Also under the Preferences menu is the Brush Color mode, which allows you to use a custom brush as a drawing shape only and not use the many colors which may be contained in the custom brush image. This helps you to create drop shadows for a custom brush.

> The Mode menu is the heart of *DigiPaint*. Here are all the shading modes that allow you to mix colors and create impressive shading effects.

There is one other menu in *DigiPaint*'s menu set. The Mode menu is the heart of *DigiPaint*. Here are all the shading modes that allow you to mix colors and create impressive shading effects. The default shading mode is Solid, where whatever color you use is exactly the same color that appears on the painting area. The next three modes, Blend, Tint and Light Tint average different colors together. Blend will combine the present color with the newly-applied color in equal proportions. Tint is biased towards the color already in place on the screen; this is always a strict ration of three to one in favor of the screen color. Light Tint is even more biased than Tint.

The next seven modes deal with colors strictly as a set of numbers (in terms of the red, green and blue components). The Maximum and Minimum modes compare the RGB values of each of the two colors, and only keep the highest and lowest RGB values respectively. Add and Subtract add and subtract RGB values.

The last three of the seven modes perform logic operations on RGB values. The And mode performs a logical AND on all RGB bits. The Or mode performs a logical OR on RGB bits. Xor performs an exclusive OR on RGB bits.

One last mode, Shading, opens up all the possibilities of dithering and gradient fills. When you select the Shading mode, a bunch of new gadgets appear in the top portion of the Toolbox. One controls the amount of dithering, and the other controls decide the direction of a gradient fill. Unlike *DeluxePaint II*, which can only perform a gradient fill in one direction at a time, *DigiPaint* can perform gradient fills with respect to both vertical and horizontal directions. The net result is that you can pick a single point where the applied color will be most concentrated.

If you have only 512K, you will find yourself severely hampered while trying to use the interlace mode, especially if you have a spare screen in the background. Fortunately, one megabyte of memory should be enough to be able to use all of *DigiPaint*'s features without ever running into memory problems. You may be slightly frustrated by the amount of waiting that occurs when you have just performed a drawing action. You have to understand that while you are waiting, *DigiPaint* is performing some heavy number-crunching routines. *DigiPaint* is written in assembly language, which makes it much faster than if it had been written in C. One good aspect concerning the math-intensive part of *DigiPaint* is that if you have something more powerful in your Amiga than a 68000, you can speed up *DigiPaint* tremendously. Even in the case of a 68010, which usually speeds up the average program by 5-10%, you will enjoy a healthy speed increase of at least 30-40% when using *DigiPaint*. The speed increase in *DigiPaint* is enjoyed in all aspects of the program (even the simple function of loading a picture from disk is executed much faster).

DigiPaint can be used to import normal IFF pictures, including combining several pictures into one stunning HAM picture. The only drawback to importing IFF pictures is that once they are brought in, they will forever be stored as an IFF HAM picture, *DigiPaint* does not allow the picture to be converted back to a non-HAM graphics mode.

DigiPaint's manual is easy to understand, and it comes with three excellent tutorials. More tutorials would have been helpful, since this product is unlike most paint programs for the Amiga.

DigiPaint's strength is in the manipulation of colors and shades. One of the reasons why NewTek created *DigiPaint* was so people who used *DigiView* could easily manipulate digitized HAM pictures. Used in conjunction with a program like *Deluxe Paint II*, *DigiPaint* will be welcomed by professional artists. Considering that *DigiPaint* costs only $60, its powerful coloring and shading features make it more than worthwhile as a manipulator of pictures created somewhere else. C

by Buck Childress

Kamikaze Duck

for the Commodore 64

Incredible birds, those Kamikaze Ducks! And you, Mallard T. Duckworth, intrepid explorer and renowned expert on our feathered friends, have been totally fascinated by these creatures for as long as you can remember. Kamikaze Ducks only exist near remote Lake Drake, high in the Duckbill Mountains. They are very colorful ducks, with a translucent appearance. Nobody knows how they are born—only that their existence begins at night, within a strange mist that haunts the sky above the lake. Even the mist fascinates you, with it's ever-changing shape and color. Kamikaze Ducks have become such an overwhelming obsession with you that you're beginning to speak with a fowl mouth.

Something has you very worried though. Kamikaze Ducks may soon go the way of the Dodo Bird. Just as baby turtles rush to the sea as soon as they hatch, baby Kamikaze Ducks dive toward Lake Drake when they leave the mist.

The mountaineer who discovered the lake, Bill Drake, for whom Lake Drake is named, was the first to witness this phenomenon. Legend has it that he was exploring the lake in his canoe at the time. The strange mist passed overhead, a duck dove toward him, and the mountains still echo his famous scream, "Kamikaze Duck!"

Lake Drake used to be covered by lily pads. An amazing occurrence would take place as soon as a Kamikaze Duck hit a pad. The duck would instantly be transformed into a full-grown adult and fly away. Einstein was correct, however. For every action there is an equal and opposite reaction. In this unfortunate case, a hit lily pad sinks. New pads have grown, but not quickly enough to keep Lake Drake covered. Without pads to bounce on, the poor little ducks splash down, never to be seen again.

After exhaustive research and observation, you found a way to save these mystical creatures from extinction. Others have tried everything—boards, rafts, fishing nets, springs, even ping pong balls. Although these items broke the dive of the Kamikaze Duck, they broke the duck as well. So, with the passage of time, the others gave it up as hopeless. But you, Mallard T. Duckworth, did not give up. You persevered and figured it out! You'll make a net out of lily pad material, attach it to the front of your motor boat, go to Lake Drake, and rescue as many Kamikaze Ducks as you can. After all, you wouldn't duck your responsibility, would you?!

Of course, to attempt your mission, you'll need to enter Kamikaze Duck. Be sure to save a copy before you run it.

The first bit of gear you need is a joystick plugged into port 2. The main gear is the game. Now load Kamikaze Duck and run it. The BASIC loader pokes the machine language data into memory and checks for errors. Once this is done, grab onto your hip boots and go get 'em by typing SYS 49152 and pressing RETURN. The realm of the Kamikaze Duck will be upon you.

You'll find yourself in your boat floating upon Lake Drake. Your joystick (helm) controls the boat and the special net. Push the stick forward to move the boat forward. Pull it back to move in reverse. Push the stick left to turn the boat left. Push right to turn right. Press the fire button to activate your net. It will appear at the front (bow) of the boat.

It's important to remember the following, Mallard T. Forward is always the direction the bow of the boat faces. If the bow is left when you push the joystick forward, the boat will move to the left. If the bow is right, the boat moves right. The same principle applies to reverse direction. When activated, the net always sticks out of the bow. It takes a little practice to become proficient at the helm.

If you look up you'll see that strange mist I was speaking of. Notice how it changes shape and color. And how, without warning, it may change its direction or height above the water.

Was that a duck I just heard splash down while you were watching the mist? Speaking of ducks, keep a careful eye on them. When they form, they assume the color of the mist at that time. Some of them dive straight down, while others spin out of control. Some angle toward the left, some to the right. But all with the same instinctive drive in their dive . . . to bounce off a non-existent lily pad. So stick out that net and snare them from their innocent fate. If you do, they'll grow up and fly safely away, thanks to your ingenious lily pad net.

Each night the mist creates 50 ducks. The more you save, the better their chance for survival. If you save all 50, everything will be just ducky.

By the way, you can only activate the net 60 times a night before it falls apart. If this happens before all 50 ducks have formed, you can always watch Lake Drake become a giant duck soup. Or, if you can't stand to see the little creatures perform a swan dive to doom, press any function key to go to the next night. For that matter, you can duck out and go to another night whenever you want, even if your net is still working. Be sure to use your net judiciously.

Did you notice the little message board at the top of the night sky? It keeps you informed of the number of critters that have Kamikazeed (dropped from the sky) and how many you've rescued, along with the number of snares you've attempted (remember—60 maximum). It also shows the highest amount you've rescued in one night. When all 50 Kamikaze Ducks have met their fate, good or bad, your mission for the night is over.

Well, Mallard, one last thing. If you need to pause for the cause, whatever it may be, pressing either the SHIFT or the SHIFT/LOCK key will suspend everything until the key is released. RUN-STOP/RESTORE will exit you from the domain of the Kamikaze Duck. SYS 49152 brings you back.

Three cheers for Mallard T. Duckworth! It's a honk of a job and I'm glad you're doing it. But, please don't send me a bill!

Before typing this program, read "How to Enter Programs" and "How to Use the Magazine Entry Program." The BASIC programs in this magazine are available on disk from Loadstar, P.O. Box 30008, Shreveport, LA 71130-0007, 1-800-831-2694.

Kamikaze Duck

```
15 PRINT CHR$(147)"LOADING AND
   CHECKING DATA LINE:":J=49152'DMVO
20 FOR B=Ø TO 11:READ A'EGWB
25 IF B=Ø THEN L=PEEK(64)*256+PEEK(63)
   :PRINT CHR$(19)TAB(31)L:PRINT'MYCP
30 IF A<Ø OR A>255 THEN 40'FIWD
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Continued on pg. 90

Continued from pg. 88

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35 POKE J+B,A:X=X+A:D=D+1:NEXT B
   :READ A:IF A=X THEN 45'LVWQ
40 PRINT"ERROR IN DATA LINE:"L
   :END'CCVG
45 X=0:J=J+12:IF D<2424 THEN 20'GPMM
50 PRINT"THE DATA IS LOADED..."
   :PRINT'CBRH
55 PRINT"SYS 49152 FOR KAMIKAZE
   DUCK...":END'CBNO
60 DATA 169,72,205,174,197,240,8,141,
   174,197,169,0,1746'BWDL
65 DATA 141,173,197,162,0,189,176,197,
   157,0,48,189,1629'BWMQ
70 DATA 176,198,157,0,49,189,176,199,
   157,0,50,189,1540'BVQM
75 DATA 176,200,157,0,51,232,208,229,
   32,213,195,32,1725'BWUR
80 DATA 68,229,169,0,162,14,157,158,
   197,202,16,250,1622'BWON
85 DATA 141,21,208,141,0,208,141,16,
   208,141,33,208,1466'BWGS
90 DATA 133,251,133,253,169,4,162,216,
   133,252,134,254,2094'BARP
95 DATA 32,239,194,201,7,176,10,162,0,
   169,46,129,1365'BUIT
100 DATA 251,169,15,129,253,230,251,
    230,253,208,233,230,2452'BBLF
105 DATA 252,230,254,165,254,201,220,
    144,223,169,11,141,2264'BBEK
110 DATA 32,208,169,15,141,23,208,141,
    29,208,169,48,1391'BWLF
115 DATA 141,27,208,169,184,141,3,208,
    141,5,208,141,1576'BWDK
120 DATA 7,208,169,228,141,9,208,169,
    160,162,208,160,1829'BXVG
125 DATA 112,141,2,208,142,4,208,140,
    6,208,169,64,1404'BUML
130 DATA 141,1,208,169,1,141,43,208,
    162,3,142,40,1259'BTSG
135 DATA 208,232,142,166,197,169,7,
    141,41,208,141,42,1694'BXMM
140 DATA 208,169,19,141,21,208,162,
    119,160,79,169,160,1615'BYJJ
145 DATA 157,112,7,192,128,176,8,153,
    0,4,169,5,1111'BRHM
150 DATA 153,0,216,169,6,157,112,219,
    136,202,16,230,1616'BWSJ
155 DATA 169,117,160,197,32,30,171,32,
    90,195,169,192,1554'BXUO
160 DATA 141,248,7,162,202,142,252,7,
    232,142,249,7,1791'BVDK
165 DATA 232,232,142,250,7,232,142,
    251,7,32,229,195,1951'BWWP
170 DATA 173,163,197,240,15,174,172,
    197,208,10,141,172,1862'BAFM
175 DATA 197,169,129,160,240,32,196,
    195,173,141,2,201,1835'BYIR
180 DATA 1,208,16,32,189,195,32,213,
    195,173,141,2,1397'BUJM
185 DATA 201,1,240,249,32,237,195,173,
    167,197,240,8,1940'BWLR
190 DATA 169,0,141,167,197,32,90,195,
    32,228,255,201,1707'BWNN
195 DATA 133,144,13,201,137,176,9,32,
    189,195,32,213,1474'BWGS
200 DATA 195,76,44,192,32,239,194,141,
    158,197,32,239,1739'BXOF
205 DATA 194,141,159,197,173,163,197,
    208,121,173,23,208,1957'BBWL
210 DATA 201,47,176,114,173,16,208,41,
    1,208,107,173,1465'BWWG
215 DATA 21,208,201,32,176,100,173,0,
    208,201,32,144,1496'BWDL
220 DATA 93,201,254,176,89,173,158,
    197,201,51,240,4,1837'BWVH
225 DATA 201,231,208,78,32,239,194,
    201,112,144,39,201,1880'BYUM
230 DATA 160,176,13,162,3,142,162,197,
    160,194,141,161,1671'BYAI
235 DATA 197,76,192,193,174,0,208,201,
    208,176,9,224,1858'BWCN
240 DATA 176,176,11,160,195,76,162,
    193,160,201,224,112,1846'BAAK
245 DATA 176,228,160,194,140,253,7,
    173,0,208,174,1,1714'BVCO
250 DATA 208,141,10,208,142,11,208,
    173,39,208,141,44,1533'BXMK
255 DATA 208,169,32,24,109,21,208,141,
    21,208,173,0,1314'BVKP
260 DATA 220,170,41,16,208,5,172,171,
    197,240,3,76,1519'BUBL
265 DATA 114,194,173,163,197,208,3,32,
    213,195,173,21,1686'BXOQ
270 DATA 208,45,166,197,208,28,173,21,
    208,24,109,166,1553'BXSM
275 DATA 197,141,167,197,141,21,208,
    238,170,197,173,163,2013'BBIS
280 DATA 197,208,7,169,33,160,48,32,
    196,195,173,16,1434'BVCN
285 DATA 208,45,166,197,208,77,173,
    166,197,201,4,208,1850'BXCS
290 DATA 9,173,4,208,174,5,208,76,56,
    194,173,6,1286'BRIN
295 DATA 208,174,7,208,56,237,10,208,
    201,10,144,4,1467'BUVT
300 DATA 201,230,144,43,138,56,237,11,
    208,201,2,144,1615'BWHG
305 DATA 4,201,240,144,30,169,198,141,
    253,7,169,47,1603'BVFL
310 DATA 141,23,208,141,29,208,169,33,
    160,8,32,196,1348'BVIH
315 DATA 195,162,0,160,128,232,208,
    253,200,208,250,76,2072'BYRM
320 DATA 8,193,173,21,208,45,166,197,
    240,20,173,21,1465'BVII
325 DATA 208,56,237,166,197,141,21,
    208,173,170,197,201,1975'BAPO
330 DATA 60,144,3,141,171,197,224,119,
    208,7,169,203,1646'BWIJ
335 DATA 162,4,76,161,194,224,123,208,
    21,169,204,162,1708'BXEO
340 DATA 8,141,249,7,142,166,197,173,
    163,197,208,3,1654'BVBK
345 DATA 32,213,195,76,8,193,224,125,
    208,10,173,249,1706'BWLP
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350 DATA 7,201,203,208,25,76,217,194,
    224,126,240,11,1732'BWQL
355 DATA 173,163,197,208,230,32,213,
    195,76,8,193,173,1861'BXWQ
360 DATA 249,7,201,203,208,3,169,0,44,
    169,1,162,1416'BSDL
365 DATA 1,32,1,195,173,163,197,208,7,
    169,33,160,1339'BTNR
370 DATA 2,32,196,195,76,8,193,32,190,
    224,165,140,1453'BUNN
375 DATA 69,141,69,142,69,143,77,1,
    208,77,2,208,1206'BSYR
380 DATA 96,133,252,134,251,6,251,165,
    251,201,9,176,1925'BWIO
385 DATA 243,32,57,195,6,252,208,4,
    232,76,27,195,1527'BTUT
390 DATA 202,224,255,32,33,195,76,5,
    195,208,18,201,1644'BVGP
395 DATA 0,240,7,152,56,233,2,76,50,
    195,152,24,1187'BRGT
400 DATA 105,2,141,16,208,142,2,208,
    96,141,42,195,1298'BUAH
405 DATA 141,49,195,141,88,195,72,201,
    8,208,2,169,1469'BUCM
410 DATA 6,141,54,195,141,81,195,104,
    174,2,208,173,1474'BVII
415 DATA 16,208,168,41,2,96,169,18,32,
    210,255,160,1375'BUKN
420 DATA 5,140,134,2,32,180,195,174,
    168,197,32,205,1464'BVGJ
425 DATA 189,160,17,32,180,195,174,
    169,197,32,205,189,1739'BYGP
430 DATA 173,169,197,205,173,197,144,
    5,240,3,141,173,1820'BXMK
435 DATA 197,160,35,32,180,195,174,
    173,197,32,205,189,1769'BYDQ
440 DATA 160,26,32,180,195,174,170,
    197,32,205,189,173,1733'BYLM
445 DATA 168,197,201,50,144,26,104,
    104,173,163,197,208,1735'BADR
450 DATA 251,32,213,195,32,228,255,
    240,251,76,75,193,2041'BXEM
455 DATA 162,1,24,32,240,255,169,0,96,
    169,49,162,1359'BTRR
460 DATA 234,76,241,195,72,32,213,195,
    104,162,240,141,1905'BYAN
465 DATA 4,212,142,6,212,140,1,212,96,
    169,0,162,1356'BSQR
470 DATA 23,157,0,212,202,16,250,169,
    15,141,24,212,1421'BVYO
475 DATA 96,160,10,140,164,197,140,
    165,197,169,250,162,1850'BAIU
480 DATA 195,120,141,20,3,142,21,3,88,
    96,173,21,1023'BSQO
485 DATA 208,201,32,176,3,76,142,196,
    174,23,208,224,1663'BWGU
490 DATA 47,144,33,206,11,208,206,11,
    208,173,11,208,1466'BWPQ
495 DATA 201,10,144,3,76,208,196,238,
    169,197,169,15,1626'BWWV
500 DATA 141,23,208,141,29,208,173,21,
    208,76,125,196,1549'BXKI
505 DATA 238,11,208,238,11,208,174,
    161,197,224,112,144,1926'BAXO
510 DATA 43,224,160,144,16,224,208,
    176,6,238,10,208,1657'BWDJ
515 DATA 76,100,196,206,10,208,76,100,
    196,206,162,197,1733'BYCP
520 DATA 16,18,162,3,142,162,197,174,
    253,7,232,224,1590'BVGK
525 DATA 202,144,2,162,194,142,253,7,
    174,11,208,224,1723'BWQP
530 DATA 208,144,35,162,2,142,163,197,
    174,10,208,142,1587'BXFL
535 DATA 8,208,162,4,134,254,142,24,
    212,56,233,32,1469'BUAQ
540 DATA 141,167,197,141,21,208,169,0,
    141,161,197,238,1781'BYIN
545 DATA 168,197,173,163,197,240,61,
    201,2,240,25,166,1833'BXLR
550 DATA 254,224,7,144,6,202,134,254,
    142,24,212,238,1841'BWSN
555 DATA 9,208,173,9,208,201,228,144,
    35,76,198,196,1685'BVJS
560 DATA 166,254,224,15,176,6,232,134,
    254,142,24,212,1839'BXFO
565 DATA 206,9,208,173,9,208,201,205,
    176,10,206,163,1774'BWDT
570 DATA 197,208,5,169,0,141,172,197,
    173,160,197,240,1859'BXCP
575 DATA 9,206,160,197,206,0,208,76,
    69,197,173,159,1660'BVEU
580 DATA 197,201,165,144,22,201,169,
    176,18,173,158,197,1821'BANR
585 DATA 201,128,176,11,205,0,208,176,
    6,141,160,197,1609'BWWV
590 DATA 76,69,197,174,0,208,173,16,
    208,168,41,1,1331'BTPR
595 DATA 240,39,224,101,144,35,72,165,
    140,69,141,69,1439'BWIW
600 DATA 142,69,143,201,64,144,10,201,
    100,144,12,56,1286'BWGJ
605 DATA 233,21,76,19,197,24,105,21,
    76,19,197,141,1129'BUNO
610 DATA 1,208,104,162,255,232,208,18,
    201,0,240,7,1636'BUIK
615 DATA 152,56,233,1,76,63,197,152,
    24,105,1,141,1201'BTTO
620 DATA 16,208,142,0,208,206,165,197,
    208,40,173,164,1727'BXGL
625 DATA 197,162,192,160,10,73,10,208,
    1,232,141,164,1550'BWMQ
630 DATA 197,142,248,7,140,165,197,
    173,39,208,41,15,1572'BWWM
635 DATA 170,232,224,11,240,4,224,16,
    144,1,232,142,1640'BVVR
640 DATA 39,208,76,49,234,18,30,32,75,
    65,77,73,976'BQUM
645 DATA 75,65,90,69,69,68,32,32,32,
    82,69,83,766'BOCR
650 DATA 67,85,69,68,32,32,32,83,78,
    65,82,69,762'BODN
655 DATA 83,32,32,32,32,72,73,71,72,0,
    0,0,499'BLHR
660 DATA 0,0,0,0,0,0,0,0,0,0,0,0,
    0'BADL
665 DATA 0,0,0,0,0,0,0,0,0,0,0,0,
    0'BADQ
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670 DATA 0,3,192,0,7,255,0,63,255,254,
    255,255,1539'BQKP
675 DATA 255,255,255,252,63,255,255,
    255,255,254,255,255,2864'BBCW
680 DATA 248,127,255,254,255,255,255,
    31,255,254,127,255,2571'BBRS
685 DATA 255,63,255,254,7,255,240,0,
    31,128,0,0,1488'BRFV
690 DATA 0,0,0,0,0,0,0,0,0,0,0,0,
    0'BADO
695 DATA 0,0,0,0,0,0,0,0,0,48,0,31,
    79'BDDT
700 DATA 252,0,127,255,252,255,255,
    252,63,255,248,255,2469'BYQL
705 DATA 255,252,127,255,224,15,255,
    254,63,255,252,255,2462'BAIQ
710 DATA 255,240,127,255,248,31,255,0,
    3,184,0,0,1598'BSHK
715 DATA 0,0,0,0,0,0,0,0,0,0,0,0,
    0'BADM
720 DATA 0,56,0,0,254,0,1,239,0,0,238,
    0,788'BJBJ
725 DATA 0,108,0,96,124,12,120,56,60,
    126,56,252,1010'BSIQ
730 DATA 115,255,156,48,254,24,28,124,
    112,14,124,224,1478'BXDN
735 DATA 7,255,192,1,255,0,0,124,0,0,
    124,0,958'BMVQ
740 DATA 0,254,0,1,215,0,0,214,0,0,
    124,0,808'BKVM
745 DATA 0,56,0,0,0,0,0,10,0,16,31,0,
    113'BGMQ
750 DATA 48,15,0,112,31,128,112,14,
    192,240,3,121,1016'BTAO
755 DATA 144,1,191,16,0,222,48,0,252,
    112,0,252,1238'BRHT
760 DATA 224,0,127,224,0,103,160,0,
    199,96,3,142,1278'BSWP
765 DATA 240,7,29,252,15,63,246,31,
    240,250,0,0,1373'BRQU
770 DATA 94,0,0,110,0,0,62,0,3,192,0,
    3,464'BIKO
775 DATA 224,0,1,240,0,1,152,0,0,156,
    0,0,774'BKZU
780 DATA 204,0,16,70,16,56,102,56,62,
    127,252,127,1088'BTCR
785 DATA 255,230,195,255,255,127,255,
    230,62,127,252,56,2299'BAPY
790 DATA 102,56,16,70,16,0,204,0,0,
    156,0,1,621'BMER
795 DATA 152,0,1,240,0,3,224,0,3,192,
    0,0,815'BKAW
800 DATA 0,0,62,0,0,110,0,0,94,31,240,
    250,787'BLFJ
805 DATA 15,63,246,7,29,252,3,142,240,
    0,199,96,1292'BRSP
810 DATA 0,103,160,0,127,224,0,252,
    224,0,252,112,1454'BTTL
815 DATA 0,222,48,1,191,16,3,121,144,
    14,192,240,1192'BSMQ
820 DATA 31,128,112,15,0,112,31,0,48,
    10,0,16,503'BOXL
825 DATA 0,0,0,0,0,56,0,0,124,0,0,214,
    394'BHXP
830 DATA 0,1,215,0,0,254,0,0,124,0,0,
    124,718'BKVM
835 DATA 0,1,255,0,7,255,192,14,124,
    224,28,124,1224'BRPS
840 DATA 112,48,254,24,115,255,156,
    126,56,252,120,56,1574'BXGP
845 DATA 60,96,124,12,0,108,0,0,238,0,
    1,239,878'BNFS
850 DATA 0,0,254,0,0,56,0,0,124,0,0,
    118,552'BJEN
855 DATA 0,0,122,0,0,95,15,248,111,
    252,240,63,1146'BQFU
860 DATA 184,224,15,113,192,6,227,0,5,
    230,0,7,1203'BQLQ
865 DATA 254,0,7,63,0,14,63,0,12,123,
    0,8,544'BKQU
870 DATA 253,128,9,158,192,15,3,112,
    14,1,248,14,1147'BSFR
875 DATA 0,240,12,0,248,8,0,80,0,0,0,
    0,588'BIPU
880 DATA 0,3,0,0,7,0,0,15,0,0,25,0,
    50'BDYP
885 DATA 0,57,0,0,51,0,8,98,8,28,102,
    28,380'BJIW
890 DATA 63,254,124,103,255,254,255,
    255,195,103,255,254,2370'BBCV
895 DATA 63,254,124,28,102,28,8,98,8,
    0,51,0,764'BNUX
900 DATA 0,57,0,0,25,0,0,15,0,0,7,0,
    104'BFYJ
905 DATA 0,3,0,0,0,0,8,0,80,12,0,
    103'BEUN
910 DATA 248,14,0,240,14,1,248,15,3,
    112,9,158,1062'BQRM
915 DATA 192,8,253,128,12,123,0,14,63,
    0,7,63,863'BOER
920 DATA 0,7,254,0,5,230,0,6,227,0,15,
    113,857'BLTM
925 DATA 192,63,184,224,111,252,240,
    95,15,248,122,0,1746'BWBT
930 DATA 0,118,0,0,124,0,0,0,64,4,2,8,
    320'BHDM
935 DATA 32,64,2,5,8,144,80,65,66,2,
    16,144,628'BMUS
940 DATA 85,133,71,191,66,23,191,114,
    75,210,176,102,1437'BWEQ
945 DATA 236,169,20,251,180,183,255,
    245,95,191,238,187,2250'BAQW
950 DATA 187,124,23,251,118,63,233,
    248,13,251,240,7,1758'BWHR
955 DATA 238,104,5,232,224,7,127,160,
    7,255,224,0,1583'BTCV
960 DATA 0,0,0,0,0,0,0,0,0,0,0,0,
    0'BADO
965 DATA 0,0,0,0,0,0,0,252,0,1,254,0,
    507'BGRU
970 DATA 1,255,224,49,10,0,113,35,0,
    240,142,0,1069'BQES
975 DATA 16,68,0,16,254,16,17,85,24,
    19,213,220,948'BQQX
980 DATA 255,255,255,255,255,252,127,
    255,240,63,255,192,2659'BBWV
985 DATA 31,255,128,0,0,0,0,0,0,0,0,
    414'BHSW
990 DATA 0,0,0,0,0,0,0,0,0,0,0,63,
```

```
     63'BCQR
995 DATA 0,0,127,128,7,255,128,0,80,
     140,0,196,1061'BQPA
1000 DATA 142,0,113,15,0,34,8,8,127,8,
     24,170,649'BNGA
1005 DATA 136,59,171,200,255,255,255,
     63,255,255,15,255,2174'BYLI
1010 DATA 254,3,255,252,1,255,248,0,0,
     0,0,0,1268'BNSB
1015 DATA 0,0,0,0,0,0,0,0,0,0,0,0,
     0'BADE
1020 DATA 0,0,0,0,0,0,0,0,0,0,0,0,
     0'BADA
1025 DATA 0,0,0,0,0,0,0,0,0,0,0,0,
     0'BADF
1030 DATA 0,0,0,0,0,0,0,0,245,85,80,
     10,420'BHVC
1035 DATA 170,160,5,85,64,2,170,128,1,
     85,0,0,870'BNHI
1040 DATA 0,0,0,0,0,0,0,0,0,0,0,0,
     0'BADC
1045 DATA 0,0,0,0,0,0,0,0,0,0,0,0,
     0'BADH
1050 DATA 0,0,0,0,0,0,0,0,0,0,0,0,
     0'BADD
1055 DATA 0,0,0,0,0,0,0,0,0,0,0,0,
     0'BADI
1060 DATA 10,170,175,5,85,80,2,170,
     160,1,85,64,1007'BQYH
1065 DATA 0,170,128,32,0,0,0,0,0,0,0,
     0,330'BHMK
```

END

Telecommunications/Inside Q-Link

Continued from pg. 62

might also want to scan the already posted questions and their responses, there are always some very interesting tidbits! By the way, this area is staffed by a real librarian—Dean DeBolt, the associate university librarian and head of Special Collections at the University of West Florida.

In addition to the message board, there's also a Library area with informational files containing tips for footnoting, lists of new publications, how to prepare a bibliography, and other useful information. Watch for more additions to this area as time permits.

The Book Reviews section offers the latest information on best-selling books. You'll find lists of fiction and non-fiction books that are just coming out, reviews of bestsellers, and the current hard-cover and paperback bestseller lists.

The other newly added service I mentioned is the Trade Plus Investment Service. When you enter this area you're actually connected to their remote system via a gateway, just like when using the Comp-U-Store. Once connected via the gateway, the main menu will show you the major services available.

The Trade Plus Service is divided into six major areas that include the Price, Order, Portfolio, Records, Information and Analysis menus. Each is selected by entering the screen number of the desired service. Actually, you can directly access any individual screen within the system by simply entering the screen number. In addition to the major areas, there's a screen for changing your passwords, obtaining system news, or viewing on-line help.

Each of the menu screens within the service includes a HELP entry that provides more detailed information on the features available from that menu. There's extensive help information throughout the service. Actually, it took me almost an hour to read through everything when I first started poking around on the service.

Overall, the service is very extensive and you'll need their documentation to make full use of the system. Once you get the feel of the system, you'll be able to find current stock and option prices, condensed market overviews, company names and stock market symbols, company announcements and messages, etc.

You can generate stock and option orders to buy or sell securities while online. Whatever you process while online will automatically be logged in a transaction record for tax purposes. Your income from dividends will also be recorded as well. Whatever securities you possess can be recorded and tracked in various portfolios you establish within the system. If you own or trade securities not handled by the system, you can manually enter the data and include them in your records.

As an added benefit, you can also set up stock and option watches. These are lists of stocks or options that you want periodic information about, with all sorts of comparisons and analysis available. There are even various analysis features provided by DYR Associates. They're a registered investment advisor providing securities research primarily related to the listed option markets.

All in all, if you're doing any kind of investment in stocks or options you should find this to be a very valuable and easy to use service.

Before I close, I just thought I'd mention the fact that summaries of current and upcoming issues of this magazine are now available on Q-Link in the News & Information section. You should also be able to find reprints of this column in a nearby area as well. As always, if you have any comments, questions or hints you can reach me by E-Mail almost daily.

by Buck Childress

Lil' Helper

for the Commodore 64



ART BAXTER

Ever been bitten by the "I know it's here somewhere" bug? It's the one that has you frantically scanning all of your disks. One of them contains that incredible routine you were going to add to your latest work of art. But which one? Ah, there it is. Better load it to be certain. Yep, that's the one. Now all you have to do is append it to your program and you'll be in business . . . What program?! Loading this and that wiped it from memory. Oh, the pain! Your inspiration up in smoke!

Take heart. Lil' Helper is here. Lil' Helper lets you scan all the BASIC programs and disk directories you want without erasing what's currently in Ol' Reliable's memory. Lil' Helper also changes the text, background, or frame (border) colors with the touch of a key. It's super easy to use. Here's how:

After saving a copy of Lil' Helper, run it. The BASIC loader will poke the machine language data into memory and check for errors. Now you're all set. Type SYS 52000 and press RETURN. An "ON" message verifies Lil' Helper is active.

You can view any BASIC program list by pressing the "L" key, then RETURN. When the message "FILE NAME?" appears, enter the name (use the DELETE key if you make a mistake) and press RETURN. The list will begin scrolling on your screen. The CONTROL key slows the listing. The STOP key allows you to exit whenever you want (handy for appending various routines). To view a disk directory, press the "D" key, then RETURN. Like the list routine, the CONTROL key slows the listing and the STOP key lets you exit at any time. You can use either of these routines as often as you like, without erasing what's currently in memory.

When your eyes start getting bloodshot from looking at the same old colors, press the "C" key, then RETURN. A menu shows that the "B" key changes the background color, the "F" key changes the frame (border) color, and the "T" key changes the text color. Each time you press a key, the color changes. By holding down the SHIFT key at the same time, you can change colors in reverse order. Press the STOP key to exit.

If you forget which key does what, type HELP and press RETURN. Lil' Helper will show you.

Lil' Helper occupies an area of RAM from 52000 to 52605. Since this isn't BASIC RAM, you can load and save all the BASIC programs you want without affecting Lil' Helper (providing they don't poke any data into Lil' Helper's domain). Should you want to run a program, it's a good idea to deactivate Lil' Helper first. Press the "Q" key, then RETURN. "OFF" will appear (what a coincidence). SYS 52000 reactivates Lil' Helper.

Give Lil' Helper a try. It really adds ease to your BASIC programming. ■

Before typing this program, read "How to Enter Programs" and "How to Use the Magazine Entry Program." The BASIC programs in this magazine are available on disk from Loadstar, P.O. Box 30008, Shreveport, LA 71130-0007, 1-800-831-2694.

Lil' Helper

```
20 PRINT CHR$(147)"LOADING AND
   CHECKING DATA LINE:":J=52000:L=70
   :C=11'FUFN
30 PRINT CHR$(19)TAB(31)L:FOR B=0 TO C
   :READ A:POKE J+B,A:X=X+A:NEXT B
   :READ A'NCON
40 PRINT:IF X<>A THEN PRINT"ERROR IN
   DATA LINE:"L:END'HFXK
50 X=0:J=J+12:L=L+10:IF L<571 THEN
   30'ITRK
60 PRINT"DATA OK AND LOADED...":PRINT
   :PRINT"SYS 52000 TO ACTIVATE..."
   :END'EDOQ
70 DATA 162,17,32,233,204,169,48,162,
   203,141,0,3,1374'BUPM
80 DATA 142,1,3,96,134,251,162,3,189,
   0,2,221,1204'BQNM
90 DATA 13,205,208,16,202,16,245,173,
   4,2,208,85,1377'BTEN
100 DATA 162,59,32,233,204,76,116,164,
    173,1,2,208,1430'BUTE
110 DATA 72,173,0,2,201,67,208,8,162,
    24,32,233,1182'BRVE
120 DATA 204,76,139,204,201,68,208,27,
    32,68,229,169,1625'BWUG
130 DATA 36,133,251,133,254,169,5,162,
    8,160,0,32,1343'BTYG
140 DATA 186,255,169,1,162,251,160,0,
    76,23,204,201,1688'BVEI
150 DATA 76,240,27,201,81,208,18,162,
    20,32,233,204,1502'BVIJ
160 DATA 169,139,162,227,141,0,3,142,
    1,3,76,116,1179'BSGJ
170 DATA 164,166,251,76,139,227,32,68,
    229,162,0,134,1648'BWVL
180 DATA 198,134,251,134,254,32,233,
    204,169,51,133,212,2005'BAKN
190 DATA 133,252,166,252,169,100,157,
    0,4,173,134,2,1542'BVQN
200 DATA 157,0,216,32,225,255,208,11,
    169,13,32,210,1528'BVPF
210 DATA 255,32,68,229,76,116,164,32,
    228,255,240,235,1930'BXQG
220 DATA 201,13,208,11,166,251,240,
    227,170,32,233,204,1956'BYKH
230 DATA 76,8,204,201,20,208,14,166,
    251,240,212,32,1632'BVHI
240 DATA 210,255,198,251,198,252,76,
    178,203,166,251,224,2462'BBPK
250 DATA 16,176,196,157,167,2,32,210,
    255,230,251,230,1922'BXAK
260 DATA 252,76,178,203,169,5,162,8,
    160,5,32,186,1436'BTSL
```

```
270 DATA 255,165,251,162,167,160,2,32,
    189,255,32,192,1862'BXPM
280 DATA 255,162,5,32,198,255,32,245,
    204,32,245,204,1869'BWNN
290 DATA 32,245,204,32,245,204,166,
    254,208,4,201,0,1795'BVSO
300 DATA 240,23,32,245,204,133,253,32,
    245,204,166,253,2030'BYFG
310 DATA 32,205,189,169,32,32,210,255,
    32,225,255,208,1844'BXGH
320 DATA 3,76,254,204,32,245,204,201,
    0,208,8,169,1604'BTYH
330 DATA 13,32,210,255,76,40,204,16,
    36,166,212,208,1468'BVVJ
340 DATA 32,56,233,127,170,160,255,
    202,240,8,200,185,1868'BXAK
350 DATA 158,160,16,250,48,245,200,
    185,158,160,48,6,1634'BWLL
360 DATA 32,210,255,76,118,204,56,233,
    128,76,69,204,1661'BWLM
370 DATA 76,116,164,32,225,255,240,
    248,32,228,255,201,2072'BYBN
380 DATA 66,208,3,238,33,208,201,194,
    208,3,206,33,1601'BUTO
390 DATA 208,201,70,208,3,238,32,208,
    201,198,208,3,1778'BVEP
400 DATA 206,32,208,133,253,162,0,160,
    216,134,251,132,1887'BYQH
410 DATA 252,201,84,208,6,238,134,2,
    76,202,204,201,1808'BVRI
420 DATA 212,208,196,206,134,2,161,
    251,164,253,48,5,1840'BWAJ
430 DATA 168,200,76,215,204,168,136,
    152,129,251,230,251,2180'BBQL
440 DATA 208,236,230,252,165,252,201,
    220,144,228,76,139,2351'BBQM
450 DATA 204,189,17,205,240,6,32,210,
    255,232,208,245,2043'BXPM
460 DATA 96,32,228,255,166,144,240,
    248,104,104,32,204,1853'BYEN
470 DATA 255,169,5,32,195,255,169,0,
    133,198,76,116,1603'BVXO
480 DATA 164,72,69,76,80,13,70,73,76,
    69,32,78,872'BPVO
490 DATA 65,77,69,63,32,0,32,13,13,0,
    79,78,521'BMWO
500 DATA 0,79,70,70,0,145,66,61,66,65,
    67,75,764'BNNG
510 DATA 71,82,79,85,78,68,32,32,32,
    32,70,61,722'BOCI
520 DATA 70,82,65,77,69,32,32,32,32,
    84,61,84,720'BOYJ
530 DATA 69,88,84,0,13,67,61,67,72,65,
    78,71,735'BNCJ
540 DATA 69,32,67,79,76,79,82,13,68,
    61,68,73,767'BONL
550 DATA 82,69,67,84,79,82,89,13,76,
    61,76,73,851'BOKM
560 DATA 83,84,32,65,32,70,73,76,69,
    13,81,61,739'BOJN
570 DATA 81,85,73,84,13,0,0,0,0,0,0,0,
    336'BHRM
```

END

Software "Fan"atics

Continued from pg. 73

attacked it, while someone else actually shipped a disk that their cat had thrown up on (and they didn't bother to clean it up before sending it).

"Some of the funniest stories I've heard to date have taken place when the company hired temporary help for the product support area. Customer calls requesting game hints must sound peculiar to an individual who knows nothing about our software and hears only one side of the phone conversations. One helper thought we were all insane when she heard one of us explaining to a user how to get off the planet Mongo and onto Jubilex (worlds found in the *Tracer Sanction*), while another member of the group instructed someone to hit the thug over the head with the candlestick and run out the door to the east (this scene takes place in *Borrowed Time*). We're lucky she didn't call the police and have the entire group put in straight jackets for a while."

Lucy Bradshaw, Product Support Representative at Activision: "A gentleman recently called us, wondering why his *Hacker* program wasn't operating correctly. After a long confusing conversation, I came to the conclusion that he had purchased the software thinking it could help him break copy protection. I tactfully informed him that *Hacker* was an adventure game written by Steve Cartwright. He mumbled something for several seconds and tried to convince me how happy he was to own the game."

> "The reason for returning the software: their spouses threatened to file for divorce . . ."

The Ultimate "Fan"atic

Ken Balthaser, Product Support Representative at Activision: "In May of 1986 I received a phone call from a teenager having some difficulties with *Gary Kitchen's Gamemaker* program. His questions weren't too difficult to answer, but to be on the safe side I consulted our resident experts on the subject before I gave him his information. As days went by, Ryan E. continued to call, and his questions became progressively harder to answer. I finally had to break down and phone Gary Kitchen for some details I couldn't get from any other source (Gary no longer works for Activision). Needless to say, Gary was happy to answer all my questions. Several days went by, and guess who calls back again? By the third week, Ryan and I are talking about hometowns, jobs, school and anything else that comes to mind. Did you notice he wasn't asking me any technical questions? Well it just so happens that the middleman (yours truly) had been eliminated from the chain. I had already spoken with Gary Kitchen and convinced him to answer Ryan's questions personally. Ryan was delighted with this arrangement because it gave him the perfect opportunity to speak with one of his heroes. Well, I never had to contact Gary Kitchen again because it simply wasn't necessary. As time went by I actually called Ryan from time to time to ask for *Gamemaker* information I can't get around here. His help has been greatly appreciated. Isn't it ironic that a seventeen-year-old user now knows more about *Gamemaker* than I do? I still talk to Ryan E. now and then. He wants to come out here during his senior spring break to visit us. I'm still debating about letting him stay at my place, however, because we all know about those spring break party animals. Just kidding, Ryan." C

by Kevin Owens

128 Variable Find

Almost every BASIC programmer has experienced the great hunt for legal, explanatory, non-repeating variables. It can get difficult when the variable length is limited to two characters. Also, for those of you who have had Pascal or are just natural-born format programmers, it can get tough to keep track of all the variables which have been used so you can declare them at the start of your program. Even for those who aren't too concerned with format, it is sometimes necessary to keep track of program variables.

I have felt these frustrations and decided I would like to have something which would tell me what variables are in my program, where they occur, and which ones' first two characters are equal, but are unequal otherwise (IE: FANS and FALSE, or LNGTH and LNGHT). So to solve these variable problems, I wrote a machine language program which will perform these functions.

Memory Management

Unfortunately, because of the inability of a machine language program to see ROM when it is located in 88% of available RAM, most ML programmers are limited to the address space $C00-$FFF and $1300-$1BFF (if BASIC is moved up with a GRAPHIC 0 command, $1300-$3FFF is available). Because of this, most ML programs flock to $1300-$1BFF. Making use of certain program aids myself, I tried to keep the program out of the way. With the program aid I use, it wasn't in the way, but I know it would get tangled up with programs you might be using. I have been trying to demystify myself concerning the memory management on the 128 and have been avoiding confrontations with it as much as possible. However, I have overcome that "fear" and have put this program out of your way (at the expense of a few more bytes). It is clear up at $FC00 in Bank 0 RAM, never to be touched.

At this location, however, programs have no access whatsoever to any ROM routines. Therefore, in order to run a program hiding under ROM, it is necessary to put all your references to ROM in lower, ROM-visible memory. So this program is in two parts. The first is located at $C00,



ART BAXTER

Quickly find all of the variables in your BASIC programs with this fast routine.

the second at $FC00. In essence, this program takes up only $A4 bytes of ROM-visible RAM, allowing whatever else you need for BASIC programming.

Program Analysis

The last two-thirds of Part 1 (FINDVAR.1.0C00) are bank switches, JSR's and JMP's. The main program can see this "jump table," and the jump table can see ROM. Because of this the main program has access to the ROM under which it is hiding. The first third of this program lowers BASIC and loads the main program, then executes it.

Part 2 is the program (FINDVAR.2.FC00). The first step finds a variable, quits if it reaches the end of the program, or puts the variable in a buffer for later comparison as it prints it out.

The second step finds a second variable, puts it in a second buffer and compares them. If they're not equal it loops back up to the start of Step 2 to keep looking for equal variables. If an EOF occurs (the end of the program is found) the text pointer is reset to the location of the original variable. An EOF means we've listed all the line numbers that variable occurs in, and it's time to go back up where we were and begin searching for another. So after the text pointer is reset, the program jumps back to Step 1.

Step 3 deals with what to do with the variables if they're equal. If the variables are spelled differently, but the first two characters are the same, asterisks are printed on either side of the line number. You may have accidentally created two variables which you meant to be different, but aren't as far as BASIC is concerned. That is what the warning is designed to prevent. However, if they are entirely equal, the line number is printed out (if you put a ,0 after the SYS when you executed the program).

The two major subroutines do the following: The first, FINDVAR, finds a variable, whether the first character is shifted or not and returns with the text pointer pointing to that first character. If an EOF was encountered, the carry is set upon return so that the main program can handle it. How this routine finds variable is quite simple. All key words are tokenized into a one or two byte format which have an ASCII value greater than 127. Therefore, they are easy to check for and skip. The only other place actual alphanumeric characters would be used would be in REM lines, DATA lines, or in quotes. When the program runs across one of these, it ignores everything until the EOLN (end of line), for REM and DATA lines, or until it reaches a closing quote, for quote mode. Any alphanumeric character which makes it through these checks signals the start of a variable.

The second subroutine, BUFFER, puts the variable pointed to by the text pointer into a buffer. Variables are stored with their type as the first byte and the characters as the remainder. The type is either 1, 2, or 3 for floating point, integer, and string. When an array is present, 3 is added to the current type, giving types of 4, 5, or 6. With this form of "typing" comparisons are shorter, faster, and easier. The characters put into the buffer include only alphanumerics, not any of the suffixes ("%" "$" "("). Because of this, a variable may have a character length of 15 ($01-$0F). If they're longer and the variable is being put in buffer one, buffer two will be written over. This is no problem as far as the second variable is concerned because it isn't in buffer two yet. However, when buffer two is used, the end of the first variable will be written over. Also, it is possible to make a variable so long, that when it is stored it will end up writing over the MMU ($FF00). This would most likely cause the computer to crash. I didn't feel a check for variable length would be necessary because I can't see someone, in BASIC, coming up with a variable over 15 characters long. If they do, well, too bad. I

was too concerned with saving memory and execution time, and that would just add that many more bytes and cycles to the program.

This subroutine has another responsibility — arrays. When an array is found, it checks to see what the last token was (that is kept track of by the FINDVAR subroutine). If it was a DIM statement, it prints out exactly what is in the text, excluding spaces, until it reaches a closing parenthesis. If no DIM statement occurred, tens are printed for every element, since that is what BASIC assumes itself.

There are two other subroutines which are called in only one place in the program. COMPARE is the label for the first. It simply compares the two buffers. If the variables are equal, the Negative flag is cleared (forcing a BEQ). Then if the reason they're equal is only because of the first two characters, the carry will be set (forcing a BNE), and the carry is unimportant. The carry is only tested if the Negative flag says they're equal.

PRINTLINENUM is the last subroutine. This is heavily dependent upon BASIC for its floating point, integer, and ASCII conversion routines. I would have simply JSR'd to the routine which prints out numbers ($8E32), but I needed to know the length of the number so a return character could be printed if necessary (to keep line numbers from being split between lines). So I JSR the same things ROM does, but I just take a little detour before I go to the ROM routine which actually prints it out. This subroutine actually handles printing the warning characters based on flags set by the main program. This routine is called in only one place in the program, but it is transportable because it is a subroutine.

Program Execution

Type in the BASIC loader program, save it, then RUN it. If everything is correct, both programs will be saved as FINDVAR.1.0C00 and FINDVAR.2.FC00. To execute this program:

BLOAD "FINDVAR.1.0C00"

SYS DEC("C00"),0 to list line numbers of variables

or

SYS DEC("C00"),1 to list the variables only

When you press RETURN, FINDVAR.2.FC00 will be loaded and then executed. If you have a program in memory, its variables will be listed along with line numbers (if you used ,0 after the SYS). If no program is in memory, nothing will happen. Once you have run this program, begin execution by typing:

BANK 0:SYS DEC("FC00"),X

where X applies as it did above, being 0 or no-zero. It does not matter, though, which part of the program you execute. The reason you would not want to execute Part 1 at $C00 is because it accesses the drive for a specific file. You may not have the disk with FINDVAR.2.FC00 on it, and Part 1 would give you an error when it tried to load Part 2. the BANK 0 is necessary when executing at $FC00 because it is in RAM. If you were to not put the BANK 0, the computer would try to execute whatever ROM routine is at $FC00.

To list to the printer, before you execute the program, type OPEN3,4:CMD3, then your SYS. One note on output: whatever column mode you are in on the screen will be reflected on the printer. For example, if you are in 40-column mode, the output to the printer will be in 40 columns. If in 80-column mode, it'll be 80 on the printer.

NOTES

— Variables can not be longer than 15 characters.

— Characters used in DOS commands which are not in quotes are treated as variables.

— FINDVAR.2.FC00 will not execute without FINDVAR.1.0C00 in memory. ■

Before typing this program, read "How to Enter Programs" and "How to Use the Magazine Entry Program." The BASIC programs in this magazine are available on disk from Loadstar, P.O. Box 30007, Shreveport, LA 71130-0007, 1-800-831-2694.

Findvar Loader

```
100 SCNCLR:PRINT CHR$(18)" C-128
    [SPACE2]VARIABLE FIND "'DFTD
120 PRINT:PRINT "ENTERING PART 1...";
    'CCSD
130 FOR P1=DEC("C00") TO
    DEC("CA3")'FGBD
140 READ D$:D=DEC(D$)'DISC
150 POKE P1,D'BEKB
160 C1=C1+D'CFKD
170 NEXT P1'BCDD
180 IF (C1 <> 13810) THEN PRINT
    CHR$(18)"ERROR":END'HOLL
190 PRINT "OK"'BACF
200 PRINT "ENTERING PART 2...";'BBOB
210 FOR P2=DEC("FC00") TO
    DEC("FEC7")'FGVD
220 READ D$:D=DEC(D$)'DISB
230 BANK 0'BCWA
240 POKE P2,D'BELB
250 C2=C2+D'CFMD
260 NEXT P2'BCED
270 IF (C2 <> 85029) THEN PRINT
    CHR$(18)"ERROR":END'HOXL
280 PRINT "OK"'BACF
290 PRINT:PRINT "SAVING PART 1 AS
    "CHR$(22)"FINDVAR.1.0C00"CHR$(22)
    "...";'EKTR
```

```
300 BSAVE "FINDVAR.1.ØCØØ",BØ,
    P(DEC("CØØ")) TO P(DEC("CA4"))
    'EPSH
310 PRINT MID$(DS$,5,INSTR(DS$,",",
    5)-5)'ERRE
320 PRINT "SAVING PART 2 AS
    "CHR$(22)"FINDVAR.2.FCØØ"CHR$(22)
    "...";'DJHL
330 BSAVE "FINDVAR.2.FCØØ",BØ,
    P(DEC("FCØØ")) TO P(DEC("FEC8"))
    'EPKL
340 PRINT MID$(DS$,5,INSTR(DS$,",",
    5)-5)'ERRH
350 END'BACC
370 REM PART 1'BFVF
380 DATA 85,8B,2Ø,4B,ØC,A9,Ø1,A8,A2,
    Ø8,2Ø,BA,FF,AD,32,ØC'BWTP
390 DATA A2,33,AØ,ØC,2Ø,BD,FF,A9,ØØ,
    AA,2Ø,68,FF,2Ø,D5,FF'BWCQ
400 DATA A9,FØ,8D,12,12,A9,FB,8D,13,
    12,A5,8B,2Ø,41,ØC,4C'BWVI
410 DATA ØØ,FC,ØE,46,49,4E,44,56,41,
    52,2E,32,2E,46,43,3Ø'BWJI
420 DATA 3Ø,Ø8,48,A9,3F,8D,ØØ,FF,68,
    28,6Ø,48,A9,ØØ,8D,ØØ'BWJK
430 DATA FF,68,6Ø,2Ø,8Ø,Ø3,4C,41,ØC,
    2Ø,86,Ø3,4C,41,ØC,2Ø'BWOK
440 DATA 4B,ØC,4C,37,4D,2Ø,4B,ØC,2Ø,
    E2,55,4C,41,ØC,2Ø,4B'BWOM
450 DATA ØC,2Ø,75,8C,4C,41,ØC,2Ø,4B,
    ØC,2Ø,32,8E,4C,41,ØC'BWAN
460 DATA 2Ø,4B,ØC,2Ø,44,8E,4C,41,ØC,
    2Ø,4B,ØC,2Ø,D2,FF,4C'BWEO
470 DATA 41,ØC,2Ø,4B,ØC,2Ø,E1,FF,4C,
    41,ØC,2Ø,4B,ØC,2Ø,E4'BWTP
480 DATA FF,4C,41,ØC'BLAI
500 REM PART 2'BFWA
510 DATA 85,8B,A9,5Ø,A6,D7,3Ø,Ø2,A9,
    28,85,41,A6,2D,86,43'BWMK
520 DATA CA,86,3D,86,13,A6,2E,86,44,
    86,3E,2Ø,1A,FD,9Ø,Ø3'BWML
530 DATA 4C,D8,FC,DØ,Ø9,A9,ØD,2Ø,89,
    ØC,A2,ØØ,FØ,Ø9,38,E9'BWMM
540 DATA 1F,AØ,ØØ,91,3D,A2,1Ø,8A,48,
    2Ø,66,FD,68,DØ,DC,A5'BWWN
550 DATA 8B,FØ,Ø6,A9,1Ø,85,89,DØ,Ø7,
    A9,5Ø,85,89,2Ø,6F,FE'BWNO
560 DATA A5,3D,85,45,A5,3E,85,46,A5,
    43,85,47,A5,44,85,48'BWLP
570 DATA A5,83,85,8C,A5,84,85,8D,2Ø,
    1A,FD,9Ø,1B,A5,45,85'BWXQ
580 DATA 3D,A5,46,85,3E,A5,47,85,43,
    A5,48,85,44,A5,8C,85'BWDR
590 DATA 83,A5,8D,85,84,4C,1B,FC,Ø8,
    A2,1Ø,2Ø,66,FD,28,DØ'BWYS
600 DATA D7,2Ø,51,FE,DØ,D2,9Ø,Ø2,E6,
    13,A5,8B,FØ,Ø4,A5,13'BWDK
610 DATA FØ,Ø3,2Ø,6F,FE,2Ø,92,ØC,FØ,
    18,A5,13,FØ,Ø6,A9,ØØ'BWIL
620 DATA 85,13,FØ,B4,2Ø,41,ØC,AØ,ØØ,
    B1,87,18,69,1F,91,87'BWHL
630 DATA DØ,A6,2Ø,1A,FD,BØ,11,FØ,Ø7,
    38,E9,1F,AØ,ØØ,91,3D'BWJN
640 DATA A2,1Ø,2Ø,66,FD,4C,C2,FC,4C,
    5F,ØC,2Ø,53,ØC,A9,ØØ'BWBO
650 DATA 85,ØB,85,ØC,85,ØE,AØ,Ø1,B1,
    3D,DØ,Ø2,38,6Ø,AØ,ØØ'BWKO
660 DATA A5,43,85,3D,A5,44,85,3E,B1,
    3D,85,43,C8,B1,3D,85'BWRQ
670 DATA 44,C8,B1,3D,85,84,C8,B1,3D,
    85,83,18,98,65,3D,85'BWJR
680 DATA 3D,A9,ØØ,65,3E,85,3E,4C,2Ø,
    FD,2Ø,59,ØC,4C,23,FD'BWJS
690 DATA 2Ø,53,ØC,DØ,Ø6,C9,3A,FØ,F7,
    DØ,BØ,A6,ØC,DØ,F1,C9'BWVT
700 DATA 22,DØ,Ø6,45,ØE,85,ØE,1Ø,E7,
    A6,ØE,DØ,E3,C9,8Ø,9Ø'BWXL
710 DATA 12,85,ØB,C9,8F,DØ,Ø4,E6,ØC,
    DØ,D5,C9,83,DØ,D1,E6'BWFM
720 DATA ØC,DØ,CD,A2,ØØ,C9,41,9Ø,C7,
    C9,6Ø,9Ø,Ø5,C9,7A,BØ'BWYN
730 DATA BF,E8,EØ,ØØ,18,6Ø,8A,48,A9,
    ØØ,85,ØF,A9,Ø1,85,BE'BWXO
740 DATA A5,3D,85,87,A5,3E,85,88,E8,
    2Ø,59,ØC,9D,C8,FE,EØ'BWXP
750 DATA 1Ø,BØ,Ø3,2Ø,89,ØC,E8,2Ø,53,
    ØC,FØ,4E,BØ,Ø6,A4,ØF'BWEP
760 DATA DØ,48,FØ,E8,C9,41,9Ø,ØA,C9,
    7A,BØ,3E,A4,ØF,DØ,3A'BWKR
770 DATA FØ,DA,A4,ØF,DØ,16,E6,ØF,CA,
    E6,BE,C9,25,FØ,DØ,E6'BWAS
780 DATA BE,C9,24,FØ,CA,C6,ØF,E8,AØ,
    Ø1,84,BE,C9,28,DØ,1A'BWST
790 DATA 48,18,A5,BE,69,Ø3,85,BE,2Ø,
    53,ØC,68,EØ,1Ø,BØ,ØA'BWTU
800 DATA 2Ø,89,ØC,8A,48,2Ø,E7,FD,68,
    AA,A9,ØØ,9D,C8,FE,68'BWAM
810 DATA AA,A5,BE,9D,C8,FE,6Ø,A9,Ø1,
    85,1Ø,A5,ØB,C9,86,FØ'BWLN
820 DATA 36,AØ,FF,98,48,A2,ØA,A9,ØØ,
    2Ø,77,ØC,68,A8,C8,B1'BWWO
830 DATA 3D,FØ,1B,C9,2C,DØ,ØC,A6,1Ø,
    EØ,Ø2,BØ,F1,2Ø,89,ØC'BWTP
840 DATA 4C,F3,FD,C9,29,DØ,Ø8,C6,1Ø,
    DØ,E3,2Ø,89,ØC,6Ø,C9'BWPQ
850 DATA 28,DØ,DB,E6,1Ø,DØ,D7,AØ,FF,
    C8,B1,3D,FØ,1A,C9,2Ø'BWJR
860 DATA FØ,F7,C9,6Ø,9Ø,Ø7,C9,7A,BØ,
    Ø3,38,E9,1F,2Ø,89,ØC'BWRS
870 DATA C9,29,DØ,Ø5,C6,1Ø,DØ,E1,6Ø,
    C9,28,DØ,DC,E6,1Ø,DØ'BWYT
880 DATA D8,A2,ØØ,AØ,1Ø,BD,C8,FE,D9,
    C8,FE,DØ,Ø8,C9,ØØ,FØ'BWQU
890 DATA ØC,E8,C8,DØ,FØ,EØ,Ø3,9Ø,Ø3,
    38,A2,18,EØ,18,6Ø,A5'BWRV
900 DATA 83,85,64,A5,84,85,65,A2,9Ø,
    38,2Ø,6E,ØC,2Ø,8Ø,ØC'BWFM
910 DATA Ø8,48,8A,48,98,48,AØ,FF,C8,
    B9,ØØ,Ø1,DØ,FA,C8,98'BWVO
920 DATA 18,65,89,85,89,A5,13,ØA,18,
    65,89,85,89,C5,41,A9'BWEO
930 DATA 2Ø,9Ø,Ø6,88,98,85,89,A9,ØD,
    2Ø,89,ØC,A5,13,FØ,Ø5'BWOP
940 DATA A9,2A,2Ø,89,ØC,68,A8,68,AA,
    68,28,2Ø,65,ØC,A5,13'BWTR
950 DATA FØ,Ø5,A9,2A,2Ø,89,ØC,6Ø'BXRN
```

END

by Mark Jordan

The 128 Mode

ScreenSave

Explore the Commodore 128 in its powerful native mode. Some of the articles in this column may be technical, some not so technical—but we guarantee that they will spark your creativity.

This month it's time to make that heading—"Some of the articles in this column may be technical"—come true. We will take a dive into the 30-column Video controller device via the machine language monitor.

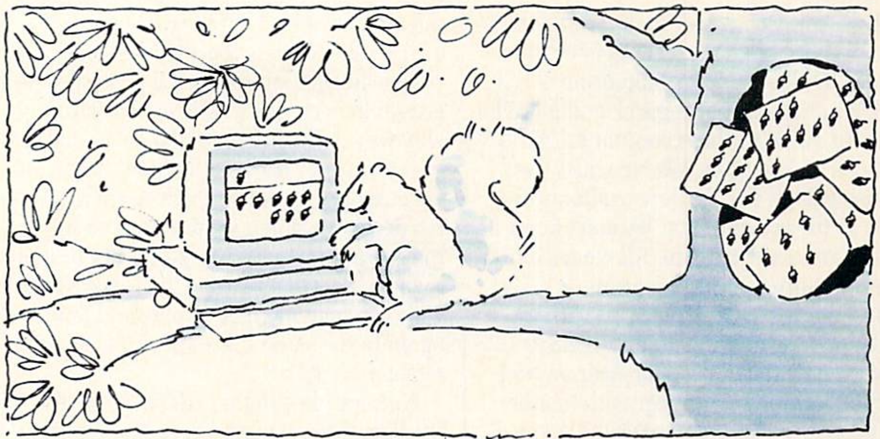
Don't despair if you're not a machine language programmer. The program discussed in the article can easily be typed in and used from BASIC, and it is a very useful routine. But don't skip past the program discussion below. The description is short enough and simple enough that you may just find out you are budding machine language programmer.

First, what this routine—ScreenSave—does: It's an 80 column screen-saver. Put a SYS 2816 anywhere you want in your BASIC program and ScreenSave will instantly save the entire screen and all its attributes. Then your program can clear the screen, create windows, do whatever it wants until the time comes to restore that saved screen: SYS 2823 will do that.

Second, what ScreenSave demonstrates: It will show you two things about your VCD (Video Controller Device): 1) how to access its registers, and 2) how fast and powerful it is. This routine will utilize one of the VCD's built-in routines—Block Copy. It lets you copy up to 255 bytes from anywhere in VCD memory to anywhere else . . . and do it *fast!* You'll see just how fast when you're done.

Third, how to type, save, and load ScreenSave: You may elect to type this routine in as listed in the brief BASIC loader at the end of this article, or you may want to fire up your computer, enter the machine language monitor, and type it in as it appears in the text. It's short enough that either way isn't a problem. The choice is yours.

If you use the BASIC loader, it will create a file on the disk called "ScreenSave". If you type it in from the monitor, use the binary save feature to save from 0B00 to 0B5D. Name your file "ScreenSave".



LINDA CLARK

Whenever you wish to use the program, in immediate mode or from within another program, simply BLOAD "ScreenSave" and then type SYS 2816 to save a screen, SYS 2823 to retrieve it.

So, machine language expert or not, let's dive in.

ScreenSave has four main sections. They are: Entry, Variable setup, VCD setup and VCD register access. By examining the code in blocks it is easier to understand it.

Entry

There are two entry points for ScreenSave. The first is at 2816 ("0B00" in hex), the second at 2823 ("0B07"). The first one is for saving a screen, the second for retrieving. The only difference between the two is that the X and Y registers are switched around.

```
00b00    a2  00        ldx #$00
00b02    a0  10        ldy #$10
00b04    4c  0b  0b    jmp $0b0b
```

This is the entry for a screen save. The X register gets a zero, Y gets loaded with $10 (16 decimal) and then we jump past the screen retrieve entry.

```
00b07    a2  10        ldx #$10
00b09    a0  00        ldy #$00
```

This is the entry for screen retrieves. Notice that the values in X and Y have simply been transposed. You'll understand why later.

Variable Setup

Machine language programs have variables just as BASIC programs do. The difference is, in machine language the variables are simply memory cells.

```
00b0b    86  fc        stx $fc
00b0d    84  fd        sty $fd
00b0f    a9  10        lda #$10
00b11    85  fb        sta $fb
```

Here we store the X and Y values into memory cells $fc and $fd. Then we stuff a #$10 (16 decimal) in location $fb. These are what I call variables. In machine language instead of typing A=16, we must first *load* one of the 6502's three internal registers with 16 with LDX, LDY, or LDA (LD=load), then we use STX, STY, or STA to *store* (yep, ST=store) that value in a memory cell. Old-timers at ML programming do this by second nature. But newcomers need to get use to this concept of placing a value in X, Y or A, then storing it in some address.

VCD Setup

The VCD has 36 internal registers. What's a register? It's simply a memory cell that is used by the computer to do things. You need a memory map to know what each VCD register does (my recommendation: *Mapping the Commodore 128* by Ottis Cowper, Compute! Books). Accessing any of these registers is a bit more complicated than simply poking or peeking to them.

ScreenSave contains two subroutines to do this for you (at 0b45 and 0b51). Until our discussion gets to that point, it is sufficient for you to know that we must load X with the register we want to deal with, then load A with the value we want to place in that register. Of course, if we're simply reading (peeking) a register, we don't need to load A. The accumulator in those cases will return from the subroutine containing the "peeked" register.

The VCD setup for a copy operation requires four steps. First we must tell the chip to do a block copy operation. Then we must tell it where to copy to. Then we must tell it where to copy from. And finally, we must tell it how many bytes to copy.

Ready? Let's tell the chip that we want to do a copy operation.

```
00b13    a2  18        ldx #$18
00b15    20  51  0b    jsr $0b51
00b18    09  80        ora #$80
00b1a    a2  18        ldx #$18
00b1c    20  45  0b    jsr $0b45
```

By loading the X register with #$18 (24 decimal) we have selected register 24 in the VCD. The jump to subroutine $0b51 will read (peek) that register and place its current value in the accumulator (A).

Look at line 0b18. We have just read register 24 in the VCD. Its contents are now in the accumulator. We don't know its value and we don't care. All we need to do is make sure that bit 7 contains a 1. By using the ORA instruction, we can do this. ORA or's the accumulator with #$80 (128 decimal). If you're not that clear on boolean logic, or-ing a number with another number will cause any set bits (1's) in either number to be set in the result.

Confused? Consider this: let's say that register 24 contained a value of 63 after reading it.

```
Here is 63 in binary:      00111111
Now here is #$80:          10000000
                           --------
Here's the result:         10111111
```

Only bit 6 isn't set. Now we are assured that bit 7 is set so we can poke this number back to register 24. Line 0b1a resets X to register 24 and jumps to the subroutine at 0b45, thereby "poking" this new value (with a set 7th bit) back into register 24.

The next subsection of our VCD setup routine requires that we select what memory address we will direct our copy to. Experienced ML programmers may be surprised to learn how we do this for the VCD. Novices can learn without bias.

An 8-bit computer cannot address any number that is greater than 255. Still, it must be able to send and receive messages from addresses that range from 0 to 65535. The way it does this is by splitting numbers greater than 255 into two bytes. From BASIC you can do this like this: Divide your number by 256. The integer result is your "high" byte. The remainder is your "low" byte. Normally the 6502 CPU places the low byte first, then the high. It seems abnormal to us humans who write our numbers from left to right, but the 6502 does things that way. The VCD divides numbers the same way but places the high byte first, just like humans do.

Rather than take too winding a detour, let's continue with the program explanation. I believe you'll soon understand what two-byte addressing is as you continue.

```
00b1f   a2  12          ldx  #$12
00b21   a5  fd          lda  $fd
00b23   20  45  0b      jsr  $0b45
00b26   e8              inx
00b27   a9  00          lda  #$00
00b29   20  45  0b      jsr  $0b45
```

First we select register 12 by loading X with #$12 (18 decimal). This register plus the next one (13) are the two bytes that contain the address the VCD will copy to.

Our destination depends on whether we are saving or retrieving a screen. That's why we set $fd differently for saves and retrieves in our entry section. Let's say we are saving a screen. $fd will equal #$10 (16 decimal). When we jump to the subroutine at $0b45 we will store this 16 into register 12. Then we load the accumulator with #0, increment X by one, and jump again to the same subroutine, this loading register 13 with 0.

Now our destination address is $1000. In effect the computer is reading registers 12 and 13 as one long number. Let's take another brief detour from our program explanation to see why.

The VCD addresses a 16K block of RAM which contains screen memory, attribute memory, some free space, and both character sets. Screen memory takes up the first 2000 bytes of RAM. ($0000—$07ff). Attribute memory (color, reverse, flash, underline, and which character set) takes the next 2000 bytes ($0800—$0fff).

Next comes 4000 bytes of free RAM. This is where we want our saved screens to go. This area begins at $1000 and continues to $1fff.

Now you can see why we set our destination address for $1000. This is free RAM. And there's just enough of it (4K) to hold screen and attribute memory.

Okay, back to our disassembly discussion. We now must tell the VCD where we want to copy FROM, that is, our source RAM. Well, that should be obvious. We want to copy the screen memory and the attribute memory. Here's how:

```
00b2c   a2  20          ldx  #$20
00b2e   a5  fc          lda  $fc
00b30   20  45  0b      jsr  $0b45
00b33   e8              inx
00b34   a9  00          lda  #$00
00b36   20  45  0b      jsr  $0b45
```

Aha! Looks a lot like the previous section. And it is. The only differences are: 1) we are now addressing registers 32 and 33 ($20 and $21 in hex) and, 2) instead of storing what was in $fd, we are storing the contents of $fc as the high byte of our source address.

If you glance back up to the entry section, you'll see that for a screen save, we stored a 0 in $fc. Thus, our source address is $0000. And that's exactly where our screen memory begins: $0000.

To review, our source for the copy is $0000 and our destination is $1000. And now the two sets of address registers are set for that. At this point you may realize why the X and Y registers transposed the initial values when we entered at 0b07 for a retrieve. It simply transposes the source and destination addresses, effectively transposing the information also.

The VCD needs one more bit of information before it can do a copy. It needs to know how many bytes we want to copy.

```
00b39   a2  1e          ldx  #$1e
00b3b   a9  ff          lda  #$ff
00b3d   20  45  0b      jsr  $0b45
```

Register 30 ($1e) is the VCD register that must be set with the number of bytes to copy. We will copy 255 at a whack. Thus, we load A with 255 ($ff) and "poke" it into register 30.

Now as soon as we do that, the copy takes place. Zap! Two hundred and fifty-five consecutive bytes are copied from the source address to the destination.

Ah, but we wanted to copy a whole screen's worth and the attributes to boot. That's 4000 bytes. No problem. We simply repeat our copy operation 16 times.

```
00b40   c6  fb          dec  $fb
00b42   d0  f5          bne  $0b39
00b44   60              rts
```

Recall that $fb was loaded with a value of 16 at the beginning. We decrement it until it reaches zero. Each time until then, we simply branch back to $0b39 and reset the copy register to do a copy.

You may be wondering why we didn't have to update the source and destination addresses. That's because the VCD automatically increments the address value in the address registers each time they are used. Thus, after each of our 16 255-byte copies, the address register is pointing to the next memory address in sequence. It's very handy.

Accessing the VCD Registers

It isn't really difficult to poke or peek the VCD once you get the hang of it. The following two subroutines do it for you.

```
00b45   8e  00  d6      stx  $d600
00b48   2c  00  d6      bit  $d600
00b4b   10  fb          bpl  $0b48
00b4d   8d  01  d6      sta  $d601
00b50   60              rts
```

This routine pokes whatever value is in the accumulator into register X. The BIT instruction is required because the VCD doesn't want to be interrupted at just any time. This instruction will wait until it's ready before proceeding.

```
00b51   8e  00  d6      stx  $d600
00b54   2c  00  d6      bit  $d600
00b57   10  fb          bpl  $0b54
00b59   ad  01  d6      lda  $d601
00b5c   60              rts
```

This routine simply reads the register designated by X. The result will be in the accumulator. Again note that it must wait for the VCD before doing the work.

The reason we are so interested in $d600 and $d601 is because they are the only two memory cells in our 128K of non-VCD RAM that both the VCD and the 6502 can communicate through. Don't ask me to explain why—the engineers who designed the machine had their own very sound reasons.

That's it. You have just learned how to perform a block-copy operation via the VCD. If you wish to understand it better, now go back and trace your way through what happens when we want to retrieve a screen. Remember, the entry point for a retrieve is at 2823 ($0b07).

I told you at the outset that this routine is fast. I tried doing a machine language screen save of my own using the 6502 to do all the work. ScreenSave was many times faster. It's too fast for the naked eye.

Test it out. Install ScreenSave (BLOAD "SCREENSAVE"). Now list something on your screen in blue or yellow. Throw in some reverse, some underline, some flashing characters here and there. Now go to some clean line on the screen and type SYS 2816. You've just saved your screen.

Clear the screen. Type SYS 2823. CHHNGGG! There it is, flashing and all. If you'd like to time it, type NEW and then type this program.

```
10 T=TI:
20 FOR T=1 TO 100:SYS 2816:NEXT:
30 PRINT (TI-T)/100:
```

Before typing this program, read "How to Enter Programs" and "How to Use the Magazine Entry Program." The BASIC programs in this magazine are available on disk from Loadstar, P.O. Box 30008, Shreveport, LA 71130-0007, 1-800-831-2694.

Screen Save

```
10 REM SYS 2816 TO SAVE,
   2823 TO RETRIEVE'BDCF
20 FOR T=Ø TO 92:READ A$
   :POKE 2816+T,DEC(A$):NEXT'ITAG
30 BSAVE"SCREENSAVE",BØ,
   P2816 TO P29Ø9'CPKG
40 PRINT"[CLEAR,GREEN,SHFT S]CREEN
   [SHFT S]AVE IS IN MEMORY AND ON
   DISK."'BALL
50 PRINT"[YELLOW,SHFT C]HECK IT OUS.
   [SPACE2,SHFT T]YPE "CHR$(15)"
   [SHFT S,SHFT Y,SHFT S]
   2816"CHR$(143)", CLEAR THIS
   SCREEN, THEN TYPE "CHR$(15)"
   [SHFT S,SHFT Y,SHFT S] 2823[BLUE]
   "'ENBD
6Ø LIST'BAEC
7Ø END'BACD
8Ø DATA A2,ØØ,AØ,1Ø,4C,ØB,ØB,A2,1Ø,AØ,
   ØØ,86,FC,84,FD,A9'BWJO
9Ø DATA 1Ø,85,FB,A2,18,2Ø,51,ØB,Ø9,8Ø,
   A2,18,2Ø,45,ØB,A2'BWXO
1ØØ DATA 12,A5,FD,2Ø,45,ØB,E8,A9,ØØ,
    2Ø,45,ØB,A2,2Ø,A5,FC'BWFF
11Ø DATA 2Ø,45,ØB,E8,A9,ØØ,2Ø,45,ØB,
    A2,1E,A9,FF,2Ø,45,ØB'BWUG
12Ø DATA C6,FB,DØ,F5,6Ø,8E,ØØ,D6,2C,
    ØØ,D6,1Ø,FB,8D,Ø1,D6'BWHH
13Ø DATA 6Ø,8E,ØØ,D6,2C,ØØ,D6,1Ø,FB,
    AD,Ø1,D6,6Ø,EA,EA,EA'BWYI
```

END

by Matt Blais

Vocalize

Have your Amiga recite any text file.



It started out innocently enough. My brother was just another summer camp counselor too busy—or too lazy—to write home. So instead of getting a letter in the mail, I got a cassette tape. You know the kind: "Super Low Noise, High Energy" (which means super high noise, low energy) Saturday night blue-light bargain-basement special from the express check-out lane at a discount store.

It was only proper to respond in kind, but I couldn't get myself to say anything interesting to a tape recorder, so I decided to let Amy dictate my letter. Blow the dust off the AmigaBASIC manual, shine up the mouse, roll up the sleeves, and many hours later, voila: Vocalize.

Vocalize is an AmigaBASIC program which takes ASCII input from a text file or from the keyboard (in "keyboard entry mode") and speaks the text using the Amiga's built-in voice synthesis capability. The program can dynamically control speech characteristics using the AmigaBASIC SAY command.

You can alter the speech parameters at any point in the dictation by inserting command lines into your text file, or by typing the command lines if you are in keyboard entry mode.

Vocalize reads in lines of text, looking for a punctuation mark ending a sentence. When it has found a complete sentence, it uses AmigaBASIC's TRANSLATE$ function to translate it into a string of phonemes (simple consonant and vowel sounds). The program then gives this phoneme string to the SAY command along with the current speech parameters, and Amy speaks the sentence.

There is always a short pause before the SAY command starts to produce speech because of the amount of processing involved in translating the English text and pronouncing the phonemes. By giving the SAY command one complete sentence at a time, these pauses fall naturally in between sentences.

Running Vocalize in keyboard entry mode allows you to experiment with alternative spellings for words which TRANSLATE$ mispronounces. Keep in mind that you can type in words and hit RETURN until you're blue in the face, but you won't hear a peep until you enter a period, question mark, exclamation point or semicolon to finish the "sentence." You may end up writing letters which look as if they were written by someone who knows how everything is pronounced, but how nothing is spelled. For instance, you might have to write "I wrote to Clod in Yoorup last Feb-you-wary, but I haven't received an an-ser."

Keyboard entry mode also provides an easy way to fiddle with the speech parameters and hear immediately what effect a parameter change will have on speech quality. You can change any parameter's current value by giving a "command line:". Start the line with a pound sign (#), followed by the parameter number you wish to change (a digit from zero to five—see the program listing for parameter descriptions), then a comma and the new value for the parameter; don't use spaces. If you type "#0,100" followed by "#4,15000" you get a basso profundo suitable for the Green Giant. You might want to slow down his speech by typing "#2,90". When you get tired of the Giant, type "#0" to reset the pitch parameter to its default, "#4" will reset the "tuning" parameter, and "#2" will reset the rate.

Starting a command line with an equal sign instead of a pound sign will set a new default value for a speech parameter without changing its current value. For example, entering "=2,70" will set the default speech rate to 70 words per minute. This means that whenever you reset parameter 2 to its default (by typing "#2"), it will be set to 70 (the normal default value for this parameter, defined in a DATA statement near the beginning of the program, is 165). A default set in this way will only remain in effect until the program ends (or until you change it again). The DATA statements define the default parameter values which will be loaded whenever the program is run.

The first character of a command line must be a pound or equal sign, and any text following the command on the same line is ignored. You can actually get a "conversation" going between two different voices by changing the voice parameters back and forth between sentences.

When Vocalize runs, it prompts you for the name of a text file (type "0" to enter text on the keyboard). If you hit RETURN at the prompt, the program will use the default file name "RAM:letter".

If you have enough memory, you may want to copy the speech library files into RAM, which will reduce the time required to open these libraries whenever you run Vocalize. To do this, type (from CLI):

```
copy LIBS:translator.library to RAM:
copy DEVS:narrator.device to RAM:
```

Then you must tell Amy where to find these files by typing (from CLI):

```
assign LIBS: RAM:
assign DEVS: RAM:
```

When you are done using Vocalize you will want to delete these two files and reset the LIBS: and DEVS: logical names by typing (from CLI):

```
delete RAM:translator.library
RAM :narrator.device
assign LIBS: SYS:libs
assign DEVS: SYS:devs
```

One good method for composing a spoken letter is to run a simple text editor—like Ed—while Vocalize is running in keyboard entry mode (God bless multitasking). You can click over to Vocalize to find a good spelling for those words you know Amy will mispronounce (like "David" and "ninety," which are mispronounced "Daah-vid" and "nin-i-ty"). After a while you'll probably be spelling everything like a second grader, just to be safe. If you edit "RAM:letter" in your editor, save it peri-

odically (without exiting the editor) and run Vocalize (hitting RETURN to use the default file name "RAM:letter") to hear what your letter sounds like so far.

With a little effort—and a lot of patience—you can produce some passable foreign language. Try "Voolayvoo kooshay ovekmwoh seswohr" for you etudiants de francais, or "dawnday esta la cohsoh deh paypay" for you Spaniards. That's what an "Amigan" accent sounds like—a bit like my French teacher, actually.

One other important piece of information: use CTRL/C to stop Vocalize. If it's reading text from a file, Vocalize will end when it reaches the end of the file. In keyboard entry mode you must use CTRL/C to exit the program.

The best part comes at the end of the your letter when you get to put in:

#2,270

If you would like a transcript of this letter, send nine nine-tee five to, P O Box California, and don't forget the zip. Hurr-ree, operators are standing by. Not available in stores, so take advantage of this special one time offer, and order today! ■

Vocalize

```
DIM voice%(9), default%(9)
INKBD = 0 : INFIL = 1          ' Constants
ON BREAK GOSUB Finis
BREAK ON
ON ERROR GOTO ErrTrap

REM --- The following voice parameters for the SAY command
REM --- determine the characteristics and sound quality of the
REM --- speech. Note that the FIRST parameter is number 0,
REM --- NOT number 1 !!

DATA 100     :' #0  Pitch        65-320  Hertz
DATA 0       :' #1  Inflection   0/1  (on/off)
DATA 165     :' #2  Rate         40-400  words/min
DATA 1       :' #3  Gender       1/0  (M/F)
DATA 22000   :' #4  Tuning       5000-28000
DATA 64      :' #5  Volume       0-64
DATA 10      :'          <channel>
DATA 0       :'          <mode>
DATA 0       :'          <control>

REM --- Read in initial (default) voice parameters
  FOR i=0 TO 8
    READ x
    voice%(i) = x : default%(i) = x
  NEXT i

REM --- Determine whether text will be read in from a
REM --- sequential file or typed in on the keyboard
  COLOR 3,0
  INPUT "Type 0 to use keyboard, or enter file name? ", flnam$
  IF flnam$="0" THEN
    in = INKBD                    ' Use keyboard input
  ELSE
    in = INFIL                    ' Use file input
    IF flnam$="" THEN             ' If no filename, use
      flnam$ = "RAM:letter"       ' default filename
    END IF
    OPEN flnam$ FOR INPUT AS #1   ' Open file
  END IF
  buf$ = ""
  PRINT

REM --- Read the next line of text (from file or keyboard)
GetInputLine:
  IF in=INFIL THEN              ' Input from file
    LINE INPUT #1, x$
  ELSE
    COLOR 1,0
    PRINT "? ";: LINE INPUT x$ ' Input from keyboard
  END IF

REM --- Is this line a COMMAND line?
REM --- If the line begins with a "#" or an "=" then process it
REM --- as a "command" line instead of text to be spoken.
REM ---    #2,300   means change parameter 2 to 300
REM ---    #4       means reset param 4 to default value
REM ---    =1,0     means set new default for param 1 to 0
REM ---    =5       means set new default for param 5 to
REM ---                param 5's current value
REM --- Note that the "#" or "=" must be the FIRST
REM --- character on the line.  Any characters following
REM --- the command on the same line are ignored.  If you
REM --- give a parameter value, you must use the comma.

  c$ = LEFT$(x$,1)              ' Check first char in line
  IF c$="#" OR c$="=" THEN
    REM --- Change a current or default speech parameter
    IF buf$<>"" THEN            ' If there is text in buffer,
      txt$ = buf$               ' speak it before changing param
      GOSUB SayTxt
      buf$=""                   ' Now buffer is empty
    END IF
    p = VAL(MID$(x$,2,1))       ' p = which param # to change
    IF MID$(x$,3,1)<>"," THEN ' If no value is given, then
      v = default%(p)           ' set param to its default value
      IF c$="=" THEN v=voice%(p) ' (Use current value)
    ELSE
      v = VAL(MID$(x$,4))       ' Use the given value
    END IF

    IF c$="#" THEN
      voice%(p) = v             ' "#"  Change current parameter
    ELSE
      default%(p) = v           ' "="  Set default value
    END IF
    COLOR 2,3 : PRINT x$;       ' Display the command line
    COLOR 1,0 : PRINT
    GOTO GetInputLine           ' Get next line

  ELSE
    REM --- Input line is text to be spoken (not a command)
    IF x$="" THEN GOTO ContLoop ' Ignore blank lines
    REM --- Find the last punctuation mark on the input line
    FOR i=LEN(x$) TO 1 STEP -1
      c$=MID$(x$,i,1)
      IF c$="."OR c$=";"OR c$="!"OR c$="?"THEN GOTO FoundPunct
    NEXT i

    REM --- No punctuation mark: add this text to buffer
    REM --- and check next line for punctuation
    buf$ = buf$ + " " + x$
    GOTO ContLoop
  END IF

REM --- Found a punctuation mark in the input line:
REM --- now speak the text in the buffer and input line,
REM --- up to the punctuation mark.

FoundPunct:
  txt$ = buf$ + " " + LEFT$(x$,i)
  GOSUB SayTxt
  REM --- The buffer now becomes the remainder of the input
  REM --- line which wasn't spoken (after the punct mark).
  buf$ = MID$(x$,i+1)
REM --- CONTINUE: if reading text from a file, check now
REM --- for End-Of-File.  If reading from keyboard, go back
REM --- for another line of text.

ContLoop:
  IF in=INKBD THEN GOTO GetInputLine   ' Keyboard input
  IF NOT EOF(1) THEN GOTO GetInputLine ' File input

  REM --- If any text is left in the buffer, say it now
  IF LEN(buf$)>1 THEN
    txt$ = buf$
    GOSUB SayTxt
  END IF

Finis:
  REM --- Control also passes here on CTRL/C
  IF in=INFIL THEN CLOSE 1
  COLOR 2,3 : PRINT " Bye "; : COLOR 1,0 : PRINT
  END

REM --- SUBROUTINE to print & speak the English text in txt$
SayTxt:
  REM --- If text is longer than 77 characters, display it
  REM --- on more than one line.
  COLOR 3,0
  prt$ = txt$                   ' Make copy of string to print
  WHILE LEN(prt$) > 77          ' Find a space in string
    sp = 77
    WHILE MID$(prt$,sp,1)<>" " AND sp>0
      sp = sp-1
    WEND
    IF sp=0 THEN sp = 77
    PRINT LEFT$(prt$,sp)        ' Print chars up to the space
    prt$ = MID$(prt$,sp+1)      ' Process remainder of string
  WEND
  IF prt$>"" THEN PRINT prt$' Print rest of string

100 phon$ = TRANSLATE$(txt$)' Translate english to phonemes
200 SAY phon$, voice%        ' Pronounce phoneme string using
    REM                        current voice parameters
RETURN

REM --- Routine to trap and handle BASIC errors
ErrTrap:
  COLOR 2,3
  IF in=INFIL THEN CLOSE #1    ' Close input file, if open
  PRINT " ERROR ";
  IF ERR=5 AND ERL=100 THEN
    PRINT ": translator.library  is not in LIBS: directory! "
  ELSEIF ERR=5 AND ERL=200 THEN
    PRINT ": narrator.device  is NOT in DEVS: directory! "
  ELSE
    COLOR 1,0
    ON ERROR GOTO 0              ' Turn off error trapping
    RESUME                       ' Re-cause same error
  END IF:                        ' so BASIC will display line

  COLOR 1,0
  END
```

by Graham Kinsey

Amiga Public Domain Update



ED SAUK

This month I was able to obtain Fish disks 91 through 102 for review, but all the important programs have come from elsewhere. The gems this month are Snipit, a program which allows you to cut and paste between any two Amiga programs and Wordwright, a full-featured word processor. Also this month I talk about the ARP project, a replacement for the AmigaDOS commands. For each program, the author is given along with the Fish or AMICUS series number (if applicable). I do not keep track of which programs are available on PeopleLink since virtually all of the programs mentioned in this column are available for download in the libraries in the Amiga Zone on PeopleLink (if not by the time I write this, then certainly by the time this column is published). When a public domain program has been classified as shareware, this is also mentioned with the suggested amount.

Parse: by John Olson (Fish 92)
This is an expression parser. It will handle many trigonometric functions, and some transcendental functions.

IFF2PS: by William Mason and Sam Paolucci (Fish 94; Shareware: $15)
This utility converts any IFF picture to a PostScript-compatible file. You can specify how many shades of gray (up to 256) will be used to represent the IFF image, as well as whether the PostScript image will be positive or negative. You can send the PostScript file directly to the serial port, which allows you to immediately print the file on a PostScript-compatible laser printer hooked to the serial port.

Record-Replay: by Alex Livshits and J-M Forgeas (Fish 95)
Similar to Journal (reviewed in the December '87 installment), this program also records Amiga sessions (both mouse and keyboard input), and then can play back a recorded Amiga session.

Chess: by Bob Leivian (Fish 96)
A port of a chess game from the Unix environment. Some of the options include controlling how long the computer is allowed to think, move suggestion, and switching sides. You can save games in progress to disk. Unfortunately, this chess game will not allow all possible legal moves at all times (although rare).

Hackbench: by Bill Kinnersley (Fish 96)
When you run this program, it appears to be a replacement for the Workbench program itself, although it is not intended to be. The primary purpose for Hackbench is to allow programmers to explore the inner workings of a Workbench-like program. Hackbench does not support all the functions of Workbench, such as the Format and Info menu options.

Label: by Mike Hansen (Fish 96)
Label is a simple program for printing address labels. You can print up to five lines, with a maximum of 24 characters per line. One of the menu options allows you to test for correct label positioning.

PopupMenu: by Derek Zahn (Fish 96)
Here is a demo and matching source code that demonstrates how to implement pop-up menus that are Intuition compatible. Many changes in the use of the IDCMP flags are made for this to work.

TimeRam: by Bruce Takahashi (Fish 96)
If you would like to test the speed of different memory boards, or test the speeds of memory inside the different model Amigas, this program will test the speed of either the FAST or CHIP memory in a machine. This tester disables multitasking while it runs.

Hddriver: by Alan Kent (Fish 98)
This is a hard disk device driver for a Western Digital 1002-05 controller card. Some hard disk caching is built into the driver. Plenty of source code is provided, along with a crude ASCII schematic for hooking up the Western Digital controller card to the Amiga 86 pin bus.

QBase: by Kevin Harris (Fish 98)
Here is an easy-to-use database program, that is designed for addresses and phone numbers. You can actually use this program to manage any database, so long as your database needs to store a maximum of five fields per record. QBase opens up a colorful custom screen, with lots of custom gadgets. QBase can only handle a maximum number of 200 records per file.

Berzerk: by Leo Schwab (Fish 100)
Short for "The Dream Goes Berzerk," this is the now-famous animation demo done by none other than Leo Schwab (the father of graphics display hacks on the Amiga). Although I don't personally feel that Berzerk has replaced Juggler as the best graphics demo on the Amiga, Berzerk is clearly the best animation I've seen that was done with *VideoScape 3-D*. Be warned, this demo requires one megabyte in order to run.

CirPlane: by Thad Floryan (Fish 101)
For those of you who own *VideoScape 3-D*, here is an extra shape generator. CirPlane will create a circular plane. This could be used to cap a cylinder, create a trashcan lid or represent the sun.

IconAssembler: by Stefan Lindahl (Fish 101; Shareware: $5)
IconAssembler will allow you to edit any icon, by replacing the icon image (or images, if an alternate image is already in place) with any IFF brush file. If the file

contains more than two bitplanes, the extra bitplanes will be discarded.

MicroSpell: by Daniel Lawrence (Fish 101)

This spelling checker has only a 43,000-word dictionary. It is designed to be used with the text editor Emacs (version 3.9 and above). Multiple dictionary files are allowed. MicroSpell has features like global replace, case support, and a default replacement option.

MAT: by Pete Goodeve (Fish 102)

MAT is a complicated and full-featured program that performs pattern-matching and related functions on text files. It can also splice sections of text and save them as a new text file, and there is also a case-sensitive mode. It can also perform pattern-matching on filenames instead of text files themselves. MAT supports both AmigaDOS and Unix-style wildcards.

Autotest: by Michael Hitch

This is a program that measures disk (floppy or hard) performance. It checks both raw data transfer rate and seek time (with varying distances between original read head location and destination). Also included in the Autotest archive is Diskverify, which will check any floppy disk for errors.

Convert: author unknown

If you have old BASIC programs that you would like to convert to AmigaBASIC, here is a little helper. Convert removes all line numbers from a BASIC program and converts them into AmigaBASIC-style labels.

Diagnose: by Custom Services (Shareware: $5)

Diagnose contains two programs that perform diagnostic functions on your Amiga. Memtest will examine the memory inside your Amiga to make sure that it holds the correct information that is sent to every memory address. Memtest will only test memory that hasn't already been allocated (i.e., memory that is free for use). Memtest will test each block of memory that it can get its hands on, but you can also ask Memtest to test every byte of memory individually. The other diagnostic program, Systest, will perform read or seek tests on your floppy drives.

Dirwin: by Brian Conrad

If you hate to type "dir" every time you need a listing of files on a disk, Dirwin will automatically fetch a disk's file directory when you insert a disk. This program will work just fine with the Workbench, opening its own window when you first call it.

Dominoes: by Brian Moats

A very nice dominoes game, that was written in Modula-2. Dominoes uses an oversized playing field that you can scroll through. Speech and animation liven up the game. Both on-line help (via a text file), and a limited tutorial help you to understand the game. A cribbage board is used to keep score. The computer can give you a hint, and you can force the computer to play out of turn.

MacGag: by John Hodgson

For those Macintosh fans who converted to the Amiga, MacGag will simulate the way Macintosh windows open and close for Amiga Windows.

MasterMind: author unknown

A nice version of the classic MasterMind game. This uses simple, but colorful graphics for the board and pieces.

MemClock-2: by Bill Raecke

If you like little clock/free memory title bar programs, here's another one for you to check out. MemClock-2 displays CHIP and FAST memory separately. It also displays the date and the day of the week in addition to the time.

Music: by Brian Conrad

This little program will tell you what instruments are needed for any *Deluxe Music Construction Set* song, or for any IFF SMUS song in general.

Mv: by Andry Rachmat (Shareware: $10)

Mv is a powerful replacement for the AmigaDOS Rename command. The most important feature added in Mv is that it accepts wildcarding to allow renaming of more than one file at once. Mv uses Unix-style wildcarding conventions. You can specify a path for the new name, which allows you to move the file in addition to renaming it.

Ncd: by J. Brack

If you like the idea of having the CLI 1> prompt replaced by the current path, but don't want to use a shell or other replacement program instead of the default AmigaDOS, Ncd will replace the 1> prompt with the current path.

SDBackup: by Steve Drew

SDBackup is a nice hard drive backup

program. It can not only perform a backup of just new files that have been created since the last backup, but also can back up only files that have been modified/created since a certain date. The program will allow you to format floppies while in the progress of a backup. It can create a log of backup files. It uses a modified Lempel-Ziv method for file compression, although you can tell SDBackup to not perform any compressing, which is extremely useful if you are backing up files that are already compressed (for example, if you are backing up the upload/download file of a bulletin board). SDBackup has been programmed to handle possible errors (like read errors on the hard drive or the backup floppies).

Snipit: by Scott Evernden

Snipit implements one of the features possible on the Amiga that hasn't been made available by most programs: cut and paste between any two windows or programs! There are a couple of examples of programs that do allow cut and paste between programs. One example is the Janus software that controls the Amiga 2000 Bridgeboard. Janus allows you to perform cut and paste between IBM programs running on the Bridgeboard and Amiga programs. A rare example of cut and paste possibilities with Amiga software comes from Micro-Systems Software's line of business programs (*Online!*, *Scribble!*, *Organize!* and *Analyze!*). But Snipit allows you to perform cut and paste operations between any two windows. Selected text to be cut is always highlighted. There are some restrictions. The most important restriction is that Snipit can only work with console windows, not windows that are controlled by Intuition directly. For example, Snipit will not work with programs like VT100 (Dave Wecker's terminal program) and Blitz (text displayer). Some programs that Snipit will work with include the standard CLI (and also a CLI altered with Conman), Ed, and the terminal program AMIC. Snipit remains in the background by default, and will sleep peacefully inside your Amiga until you decide to use it (so that you can easily install it as part of your Amiga environment via the startup-sequence file). In short, another wonderful addition to your Amiga!

Speedup: by Mathias Kegelmann

This program can speed up floppy disk access time. It does this by allowing you to increase the step rate of the read head. Be warned that if you set the step rate too low, the drive will not be able to read any floppy disk at all. You may be forced to reboot due to increasing the step rate too much.

Tartan: by Dick Taylor

Tartan is an AmigaBASIC program that lets you create Scottish plaid patterns on the screen. Tartan can accept up to 20 lines of color and width information for various tartan patterns. Tartan works with 16 colors, which can't be changed from within the program. Once you create a pattern you can edit or delete any single line. Tartan does not have a save feature.

SClock: by David Lauri

Yet another title bar clock. What makes SClock unique is that it will always appear on the active screen, even if it is a custom screen. This allows you to have a clock viewable in many programs that would not otherwise allow such a program to appear on its screen.

Chinese Checkers: by Jimbo Barber

A great game of Chinese checkers. Up to six people can play, and if you have less than six human players, computer opponents will fill any empty chairs. The game has some nice graphic displays, including an optional fantasy background for the Chinese checker board. You must have more than 512K of memory in order to run this game. Chinese Checkers is a compiled AmigaBASIC program. This means that you don't have to load AmigaBASIC, but it must be available (i.e., the Extras disk needs to be in a drive) for the program to load.

Wordwright: by RTL Programming Aids

Wordwright is a one-of-a-kind program as far as Amiga public domain programs go. There has never before been a program in the public domain that even comes close to posing as a full-featured word processor (There has always been continual growth in the area of public domain text editors for the Amiga, but even half-decent word processors have been an extremely rare find in the Amiga public domain arena).

Wordwright is designed as an integrated package, with its four main components being a word processor, a mail merge feature, an outliner and a set of general purpose utilities. Wordwright supports both macro capabilities and math functions within the text. You can automatically generate an outline from your text, and then easily flip between the text and the outline. You can create formulas (both acting on numeric and string variables) when creating a document with mail merge features. Comparisons and conditional statement (of the IF/THEN ... ELSE ... ENDIF type) can also be used with the mail merge capabilities. Wordwright uses color to highlight text and commands. The mouse can be used to control the cursor. Wordwright commands for draft and letter quality print mode, and italics, underlining and bold type are all supported, as well as subscripts and superscripts. A calculator (that can operate in Hexadecimal mode as well as decimal) and a memory dump program are part of the utilities package. A screen-saver is also built into Wordwright, and can be controlled from the Utilities window. Since Wordwright requires large blocks of contiguous memory, you may find it tough to run, especially if you have only 512K of memory and/or have been running many programs (which could fragment memory) prior to loading Wordwright. Wordwright comes with a huge manual (huge due only to its vast number of features), which can be automatically accessed at any time via one of the function keys. The manual, of course, has an outline already built into the text file, which makes browsing through it a delight. If you must have a word processor, but don't want to pay a hundred dollars or more for a commercial package, or are frightened by the lack of user-friendliness in most public domain text editors on the Amiga, Wordwright may look fantastic to you!

QuickFlix: by Jeff Kunzelman, Rodney Iwahina and Takeshi Suganuma (Shareware: $10)

This is a slide show program for IFF pictures. What is most important about QuickFlix is that is loads as many IFF picture frames into memory as possible at one time, unlike most IFF slide show programs which load in only one picture at a time. QuickFlix implements its own caching scheme (Warning: Don't use Addbuffers or ASDG's FACC while using this slide show program!). This allows you to flip between IFF "pages" fast enough to simulate animation. Obviously the limiting factor on how much animation is really possible with a program like this is how much memory you have. One of the supplied slide show animations requires 1.5 megabytes of memory in order for all the frames to be loaded in at once. QuickFlix supports all Amiga graphics modes (with the possible exception of interlaced HAM). It also supports overscan, for a true video image. QuickFlix will support IFF color

cycling if the pictures contain color cycling information. QuickFlix supports both internal triggering and external triggering (via a joystick hooked up to the second mouse port) for changing the current picture being displayed.

The Sculpt 3-D Animations:
by Eric Graham, Ken Offer and Byte by Byte, Inc.

The contents of this very important demonstration disk actually needs to be discussed in two different parts.

First, there are three different animations on this disk all created the same way as the incredible Juggler demo. One animation shows a wire-frame model of an F-15 fighter jet being rotated in all three dimensions. There is also a superb ray-traced HAM animation of a rocking chair rocking back and forth. These first two were both created by Eric Graham, the creator of Juggler. But the best animation on this disk is Kahnankas by Ken Offer. This is a ray-traced interlaced HAM animation of a steel-ball kinetic energy toy (The one where you pick up one of the steel balls, let it fall onto the rest of the balls, and the ball on the other end of the line jumps away from the stationary balls in the middle.) This animation is the first I've seen to seriously challenge Juggler for the title of best graphics demo on the Amiga.

I did say that there are two parts to this demonstration disk. The other programs are a slide show and two accompanying programs that allow you to take a series of IFF pictures and create a compressed animation out of them. This now means that we all can create ray-traced images with *Sculpt 3-D* (or another ray-traced package, or even a solid modeling program or just a standard paint program), and create our own Juggler-type demos!

So if Eric Graham has inspired you to create your own super animations, get this disk (or just get the player/compressor files) and create your own killer graphics demo for the Amiga!

The ARP Project: by Charlie Heath

There are many wonderful aspects of the Amiga, both in its hardware and its software. To many, AmigaDOS is not one of these and many users and developers have been complaining. Finally a serious attempt to replace AmigaDOS has begun! This project is known as the ARP project, and is being worked on by many Amiga developers, led by Charlie Heath of MicroSmiths (makers of TxEd and Fast-Fonts). The ARP disk contains replacements for many of the AmigaDOS commands, like CD, RENAME, INFO and ASSIGN. These replacement commands are written in C. One of the net results of being written in C as opposed to BCPL is that the replacement commands are much smaller and faster. All of the replacement commands are extremely backwards compatible, so that you won't be forced to relearn how to use a command if you like it the way it is now. Many new features have been added to the replacement commands. For example, in many cases you can now use wildcards "*.*" in addition to AmigaDOS' pattern matching "#?". You can also use wildcarding and/or pattern matching to specify multiple filenames in commands that previously didn't support these features (like the RENAME command). You can now use many more special escape and control characters as input or output to and from various devices. For example, you can now send control codes directly to your printer via the echo command. The error messages that commands generate make a lot more sense now. This is only the beginning. As these commands are improved, new ones (like a replacement for "dir") will be added, and other parts of AmigaDOS will also eventually be replaced.

The number of new public domain programs for the Amiga is always increasing. Of course there will also be many other new programs that are fresh off the Amiga bulletin boards and from People-Link's Amiga Zone libraries in next month's column. Special thanks this month to Jeff Kunzelman (author of QuickFlix), who is the first person to send me a disk with a public domain program he wrote for review consideration.

As always, I can be reached in the Amiga Zone on PeopleLink (ID: G KINSEY), or on the IDCMP BBS (617-769-8444, 8p.m.-8a.m.). If you have written a public domain/shareware/freely distributable program or have obtained one that you think is worth mentioning to all Amiga owners, then please attempt to contact me via the above contacts, or through *Commodore Magazine*. See you next month.

Fish disks: *For a catalog, send a SASE and four loose stamps, or $1 to: Fred Fish, 1346 W. 10th Place, Tempe, AZ 85281.*
AMICUS Disks: *$7 per disk, or send $1 for a catalog to: PiM Publications, P.O. Box 869, Fall River, MA 02722.*

C

Continued from pg. 16

```
82 DATA 248,063,255,252,127,255,254,
   127
83 DATA 255,254,127,255,254,255,255,
   255
84 DATA 255,255,255,255,255,255,255,
   255
85 DATA 255,127,255,254,127,255,254,
   127
86 DATA 255,254,063,255,252,031,255,
   248
87 DATA 015,255,240,001,255,128,000,
   000
88 DATA 000,000,000,000,000,000,000
```

LIST disablers: You can disable the LIST command on the 64 by executing these statements:

POKE 774,183 : POKE 775,163

To undo the change, execute these:

POKE 774,26 : POKE 775,167

On the 128, disabling LIST is even easier. Just execute:

POKE 774,139

To enable the 128 LIST command again, execute:

POKE 774,81

After LIST has been disabled, the program in memory can be run but cannot be listed.

Jerry Jordan
Middlefield, OH

Disabling STOP and RESTORE: On the 64, POKE 808,225 will disable these keys, separately or in combination. POKE 808,237 will enable them again.

On the 128, POKE 808,103 disables STOP and RESTORE, while POKE 808,110 enables them again.

Many Contributors
Many Cities

Disabling SAVE: On the 64, you can disable the SAVE command byexecuting POKE 818,32. POKE 818,237 enables SAVE again.

On the 128, SAVE is disabled by POKE 818,1 and enabled by POKE 818,78. Since the STOP/RESTORE combination also enables SAVE, you may want to disable STOP/RESTORE as well.

Many Contributors
Many Cities

What are those POKEs, anyway? Many newcomers are mystified by the use of POKEs to disable or change various features of their computers. The POKE magic seems powerful, but arbitrary and unknowable.

Most of the POKEs merely change some memory location in the operating system. If you know about machine language programming, you've probably dug deeply into that subject, so the POKEs are not too mysterious. But if, like most computerists, you're still struggling with BASIC, you're totally in the dark. Well here's a brief explanation:

Your computer's operations are very intimately controlled by built-in software called the operating system. This machine language program is permanently stored in ROM (Read Only Memory), where it's activated whenever the computer is powered up. The designers put this critical software in ROM, of course, so computer users and software writers couldn't unwittingly foul it up. But the designers also knew that software writers would want to change certain parts of the operating system to make the computer more useful with their software. So they set aside certain areas of RAM, which can be changed by the user, to hold these special parts of the operating system. When the computer is powered up, the ROM program writes these parts to RAM, then uses them whenever they're needed.

When you make those mysterious POKEs, such as the ones to disable the LIST command, you're really making minor changes to the RAM part of the operating system. In most cases, you're actually redirecting execution to a new location; it's very similar to changing the line number in a BASIC GOTO statement.

Louis F. Sander
Pittsburgh, PA

64 Restore Disable: Here's a nice one for program protection fans. Add these lines to the beginning of your 64 program, and neither the STOP/RESTORE key combination nor the reset button will work. Try it.

Mete Kesen
Ankara, Turkey

```
0 REM C64 RESTORE DISABLE - METE KESEN
1 FOR J=32768 TO 32776:READ K:POKE J,K
  :NEXT
2 DATA 167,2,167,2,195,194,205,56,48
3 FOR J=679 TO 687:READ K:POKE J,K
  :NEXT
4 DATA 238,33,208,238,32,208,76,167,2
```

64 program protection: Here's a technique that hides a 64 program so it cannot be listed. It also disables the STOP and STOP/RESTORE keys. The technique is permanent, so if you ever want to list or edit your program, save a copy before protecting it. Also, the protected program cannot use lines 0, 1 or 2. The first step is to add this special line 2 to the program:

2 POKE 43,PEEK(2049) : POKE 44,PEEK(2050) : POKE 808,234

Then replace all END's and exit points with:

POKE 43,1 : POKE 44,8 : POKE 808,237

Next, add this line:

1 REM ""{LEFT, INSERT 20, DELETE 10, SPACE 10, RIGHT} NO FAIR PEEKING! {SHIFT L}

Finally, type this:

POKE 2051,255 : POKE 2052,255 <return>

John Ettinger
Warren, OH

Directory Basher: This nifty program will make your disk directory unlistable, even with the "$" command from DOS 5.1 or the Fastload cartridge. As an added feature, it lets you restore a bashed directory to its normal state.

Thong Nguyen
Panama City, FL

```
100 PRINT"[CLEAR]DIRECTORY BASHER -
    THONG NGUYEN":PRINT
110 PRINT"(B)ASH OR (U)NBASH
    DIRECTORY?
120 GET A$:IF A$="B"OR A$="U"THEN 140
130 GOTO 120
```

```
140 OPEN 15,8,15:OPEN 5,8,5,"#"
150 PRINT#15,"U1 5 0 18 0"
    :IF A$="B"THEN 170
160 FOR X=1 TO 6:M$=M$+CHR$(160):NEXT
    :GOTO 190
170 FOR X=1 TO 3:M$=M$+CHR$(20):NEXT
180 M$=M$+CHR$(141)+CHR$(31)+CHR$(147)
190 PRINT#15,"B-P";5;144:PRINT#5,M$;
200 PRINT#15,"U2 5 0 18 0"
    :PRINT#15,"I"
```

File Goofer: Run this program to zero out all the file length indicators in your directory. When used with Directory Basher, it has a great effect as a security measure.
Thong Nguyen
Panama City, FL

```
100 PRINT"[CLEAR]FILE GOOFER - THONG
    NGUYEN"
110 PRINT"[DOWN]HIT SHIFT TO GOOF ALL
    FILES":WAIT 653,1
120 OPEN 15,8,15:OPEN 5,8,5,"#"
    :FOR C=1 TO 3
130 FOR S=C TO C+15 STEP 3:GOSUB 150
    :NEXT:NEXT
140 PRINT#15,"I0":END
150 PRINT#15,"U1:";5;0;18;S:GET#5,A$
160 IF A$=""THEN A$=A$+CHR$(0)
170 IF ASC(A$)=0 THEN GOSUB 180
    :GOTO 140
180 FOR B=30 TO 254 STEP 32
190 PRINT#15,"B-P";5;B:PRINT#5,
    CHR$(0);
200 NEXT:PRINT#15,"U2:";5;0;18;S
    :RETURN
```

Disk Signer: Leave your mark on all of your disks as a friendly reminder to those who borrow them. Just run this program on the desired disk before putting any other files on it. Your signature can't even be erased from the disk by normal means.
Thong Nguyen
Panama City, FL

```
100 PRINT"[CLEAR]DISK SIGNER - THONG
    NGUYEN"
110 PRINT"[DOWN]HIT SHIFT TO SIGN
    YOUR NAME ON A DISK..."
120 FOR X=1 TO 16:F$=F$+CHR$(160):NEXT
130 O$="PROPERTY OF"
140 WAIT 653,1:OPEN 15,8,15
    :OPEN 5,8,5,"#
150 INPUT"YOUR NAME < 12 CHRS";N$
160 N$=LEFT$(N$,12):S=0:GOSUB 210
170 P=144:M$=CHR$(141)+CHR$(147)
    :GOSUB 220
180 S=1:GOSUB 210:P=2:X$=O$:GOSUB 240
    :GOSUB 220
190 P=34:X$=N$:GOSUB 240:GOSUB 220
200 PRINT#15,"I0":END
210 PRINT#15,"U1";5;0;18;S:RETURN
220 PRINT#15,"B-P",5,P:PRINT#5,M$;
230 PRINT#15,"U2";5;0;18;S:RETURN
240 M$=CHR$(232)+CHR$(0)+CHR$(0)
250 M$=M$+CHR$(160)+CHR$(20)+CHR$(20)
260 M$=M$+CHR$(18)+X$+F$
    :M$=LEFT$(M$,19)
270 RETURN
```

Modem speed dialing: Owners of pulse dialing modems are acutely aware of a major drawback — speed! When the computer you're dialing is momentarily busy, redialing those seven or more digits can seem to take forever. If your local telephone company offers the feature called "speed dialing," you can be rid of the delay forever.

The speed dialing feature lets you set up nine or more telephone numbers that you can dial with two digits from any phone on your line. Put your commonly-dialed computer numbers onto speed dialing, and your modem can get by dialing two numbers rather than seven or more.
Craig Edward Given
Chattanooga, TN

"Color" on a monochrome monitor: Commodore's 16 colors are just a key press away, but they are useless to those of us without color monitors — or so we think. All we see are different shades of gray, green or amber, depending on the phosphor in our monitor. It's useful to know which colors show up as various shades of gray. From dark to light, here's how they appear on my own monochrome: black, blue, brown, dark gray, red, orange, purple, light blue, medium gray, light red, green, cyan, light gray, yellow, light green, white. Sometimes adjacent shades will show up almost identically, and different monitors may cause minor variations in the order of the shades presented, but for most purposes this order is perfectly correct.

This knowledge can be useful in many ways, such as in causing two sprites to collide, flash brightly then fade out.
Rick Root
Saline, MI

Bard's Tale II tip: We beat this game when we found the bad guy was really the Sage/Mage. The levels of our characters were: Byron 41 BA, Lord Myron 27 PA, Great Bap 53 AM, Doctor 53 AM, Doc Rock 53 AM, and Sly 41 HU.
James W. Lee
Seoul, South Korea

Plus/4 and C16 line width: These computers lack the 128's WIDTH statement to get normal or double width lines when drawing lines, circles and boxes. But you can double the width of the lines by using POKE 743,1. To return to normal, use POKE 743,0.
Cyrus Nasiraey
Meshed, Iran

64 Binary Key Decoder: This little program lets you see the ASCII value of any key on the 64's keyboard, but it expresses the value in binary notation rather than the usual decimal or hex. Programmers who frequently use machine code may find it helpful, as will readers who want to learn more about binary. After all, the best way to learn a new numbering system is to see how it expresses some quantities you're already familiar with.
Imad M. Ahmad
Amman, Jordan

```
10 PRINT"[CLEAR,RVS] C64 BINARY KEY
   DECODER - IMAD M. AHMAD "
20 FOR J=0 TO 33:READ K:CS=CS+K
   :POKE 49152+J,K:NEXT
30 IF CS<>5366 THEN PRINT"DATA ERROR"
   :STOP
40 PRINT"[DOWN2]PRESS ANY KEY TO SEE
   ITS ASCII CODE IN
50 PRINT"[DOWN]BINARY.[SPACE2]
   PRESS STOP TO QUIT."
60 PRINT:SYS 49152:GOTO 60
70 :
71 DATA 032,228,255,240,251,032,210,
   255
72 DATA 133,251,169,017,032,210,255,
   165
73 DATA 251,133,251,162,008,006,251,
   169
74 DATA 048,105,000,032,210,255,202,
   208
75 DATA 244,096
```

64 Screen Bars: This program gives you an interesting way to highlight your 64 screen display. After you run it, executing a SYS 49152 will put colorful bars onto the screen for several seconds. As you can see from the REMs, you can change the duration of the display and the vertical size of the bars by poking special values. As presented here, the screen is cleared before the bars are displayed. You can eliminate the screen clearing by executing a POKE49153,0. (It returns when you POKE 49153,147).

In all cases, your POKEs must be executed before the SYS 49152.

Matthew Lewis
Christ Church, Barbados

```
10 REM C64 SCREEN BARS - MATTHEW LEWIS
20 REM POKE 49153,0 FOR NO CLEAR
   SCREEN
30 REM POKE 49153,147 TO RESTORE CLR
40 REM POKE 49199,TIME (2 IS NORMAL)
50 REM POKE 49215,BAR HEIGHT (2
   NORMAL)
60 REM SYS49152 TO ACTIVATE THE BARS
70 FOR J=0 TO 82:READ K:POKE 49152+J,K
   :NEXT
71 DATA 169,147,032,074,192,162,000,
   160
72 DATA 000,169,000,141,032,208,141,
   033
73 DATA 208,238,010,192,173,010,192,
   201
74 DATA 017,208,005,169,000,141,010,
   192
75 DATA 032,051,192,232,224,255,208,
   225
76 DATA 238,096,192,173,096,192,201,
   002
77 DATA 208,215,096,200,192,255,208,
   251
78 DATA 238,097,192,173,097,192,201,
   002
79 DATA 208,241,169,000,141,097,192,
   096
80 DATA 234,234,032,210,255,169,000,
   141
81 DATA 096,192,096
```

128 screen POKEs: Don't listen to those who say you can't POKE characters to the 128's 80-column screen. The 128 has a screen editor routine to send bytes to the 80-column chip. To use it in BASIC, simply type the following:

SYS 52684,byte,31

"Byte" is the screen poke code for the character you want to appear on the screen. It will appear at the current cursor position, and the cursor position will advance by one when you send the byte to the chip.

You can set the cursor position anywhere you want by using this code:

SYS 52684,byte1,18 : SYS 52684,byte2,19

"Byte1" and "byte2" make up the screen address where the character is to appear. The home position has byte1 = 0 and byte2 = 0; incrementing byte2 increments the cursor position by one, while incrementing byte1 increments the cursor position by 256. For the lower right-hand corner of the screen, byte1 = 7 and byte2 = 207.

The same SYS call can be used to determine a character's color or its attributes such as underline, reverse field, blinking or graphics/upper and lower case. To do this, determine the position of the character you want to affect, then add 8 to byte1 in the expression above. Execute the resulting expression, then follow it with SYS 52684,byte,31 where "byte" is a number that will determine the attributes. The attribute table is too large to print here, but it's easy to determine it experimentally.

You can PEEK the screen by using this:

SYS 52698,,31 : RREG X

After execution, the variable X will hold the value of the character at the cursor position. If the cursor isn't where you want it, you can set its position by the techniques described above.

Michael Kimsal
Mt. Clemens, MI

Free paper, free disks, free equipment! Tons of used computer paper are thrown away each day by companies of all descriptions, and every sheet of it has one unused side just waiting to be run through your printer. You can use this paper for drafts, program listings and the like, and you can usually get it free. Just ask the person who's throwing it away, and you'll probably get permission.

If you find a stack that's wider than your printer, but good in every other respect, you can use it if you have access to a band saw and a printer with friction feed. The band saw will neatly and easily cut through a two- or three-inch stack of computer paper. The friction feed printer won't mind a diet of sawed paper.

Companies that are moving their offices can also be a good source of disks and even equipment. They often change their computer systems when they move, and they often discard the old stuff. A friend of mine got two perfectly good monitors this way, plus a ton of 5 1/4" diskettes and lots of other useful stuff. Another friend got a boxful of RS232 cables. Keep your eyes and ears open for treasures like these, but always ask permission before taking anything.

A. M. Johnson, Jr.
Cary, NC

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Men (Random) make good fighters. Cycle through the characters' attributes until you have good strength, hit points, constitution and dexterity. Don't worry about their intelligence. You'll use them to give the more intelligent characters some muscle to back them up.

One Thief—Elves, Sprites (Random) and Halflings make good thieves. Your thief will be invaluable when exploring dungeons. He can pick locked doors and disarm many traps that you will encounter in the dungeons.

One Ranger—Humans and Dwarves make good rangers. A ranger is a well-rounded character that combines both strength and intelligence (which you need for spell casting), which makes him a worthy addition to your party.

One Wizard—He requires a very high intelligence. Do not worry about his strength and hit points, as he will make up for what he lacks in strength with offensive spells. A high-level wizard is one of your most valuable party members.

One Priest—Likewise, your party can get through many close calls by having a priest. A good high-level priest can heal your party members, so you can make it back to the nearest town without getting killed. He also has some offensive spells that a wizard has too.

You will need to collect all 20 scrolls in *Phantasie I*. Some scrolls can be found in the town's armory, on monsters and hidden in dungeons. These scrolls will give you important clues that you will need in order to advance.

Dungeon exploration is a very important factor in playing the game. You will find many clues when exploring dungeons. Find the castle of J.R. Trolkin, Dosnebian Clerics (hint: the Clerics are prejudiced), and the dungeon of the Bleebs—explore these dungeons thoroughly. Your party members should be at level ten before you attempt to enter them, because you will face many monsters that keep hammering away at your hit points.

To find the gods, you must have a wizard who has the spell "transportation." The town is not listed, but it is the very last one on transportation requester. In order for you to cross the river Styx, you must have a score that says you are ready to visit the gods. Then, you must find the boatmen who lie near the river Styx, they will take you across the river. The rest is up to you.

Phantasie III

The game rules are basically the same as *Phantasie I*, except this time Nickademus is not trying to conquer an isle, he's trying to conquer the entire world. The graphics are enhanced from *Phantasie I*, and the battle options are quite different. In battle you now have a choice of eleven options (six of which I described above). The other four are Aim Bow, Fire Bow, Move Front, Move Middle and Move Back.

Improvements

In *Phantasie III* SSI has improved many of the complaints I had about *Phantasie I*. When you are exploring a dungeon and are asked to save the dungeon map, you can safely click on save without erasing the previously saved map. Your bank account will no longer be low, the maximum amount is now $1,000,000,000 (yes, that's one billion). The character representation of each race is easily distinguishable from the others, and the graphics of the monsters are enhanced, too. When your party goes into battle, you may now choose from four battle positions (mentioned above), this gives more strategy and excitement to *Phantasie III*. Your members don't just get hit any more, now they can be hit in different areas of the body. For example, Vince's left leg breaks.

I have several complaints with *Phantasie III*. The Transfer *Phantasie I* characters option does work, but I question its purpose. Your characters are transferred, but with some strange effects. It will erase any characters already created in *Phantasie III*. Your characters will lose all items except the Wand of Nikademus. They will also lose the majority of their money, experience points, and it will cause them to lose all their spells (except divine). I see no difference between importing a *Phantasie I* character and creating a brand new character in the Guild.

Again, in *Phantasie III* the length of time it takes to advance from level to level is awful, about 10-20 hours of play! The requester for swimming is back and is more annoying because now it beeps every time it appears!

Summary

I have not had as much experience playing *Phantasie III* (therefore, no hints) as I have had with *Phantasie I*. However, with the time I have had to play *Phantasie III*, I can see that it is a worthy addition to anyone's software library. This game has many improvements over *Phantasie I* and combines good graphics, stereo sound and requesters to keep you glued to your Amiga for quite some time. C

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Another consideration when picking a mail-order store is whether they offer toll-free long-distance calling. Most offer free lines for ordering, but insist you pay for the call if you want to talk with them about anything else. Eight hundred telephone numbers are the mail-order industry's great equalizer. They make buying across country as sensible and affordable as across town. But if the house you order from doesn't permit using their 800 number for non-order calls think twice about using them. If you have a problem, you could lose more than you saved on the purchase with long-distance fees.

Sometimes Things Still Go Wrong

Even with your best efforts and the best intentions on the part of the mail-order house, things sometimes go wrong. The consumer has several shields of protection—the first is his or her own good sense. Every publication has certain standards which they enforce on advertisers. The ads they carry must be honest and list only sale items which are available in the quantities indicated. The first indication of the professionalism of a mail-order house is the quality of the publication in which it appears. If you still have reservations about a dealer, the Better Business Bureau in the town it is located can give you an indication of how reputable the dealer is, based on the number of complaints they received concerning it. A big protective shield is supplied by the U.S. Government. Because any product which is either ordered through or shipped via mail service comes under the jurisdiction of the U.S. Postal Service, your local Postmaster will be able to help you unstick any sticky billing, harassment or shipping problems you might run up against.

Credit card users have another powerful shield—the bank which issued their card. If you are billed for something you didn't order, didn't receive, or aren't happy with, and can't get satisfaction directly from the mail-order company the bank will step in to help you resolve the problem. Randy Davis, a Consumer Credit Manager with First Union Bank, says most banks have an investigating agency like his Merchant Services department which resolves credit card users' complaints. "If one of our customers doesn't get what he or she is charged for or isn't satisfied with what is delivered, our agent will look into the problem, and if we agree with the card holder, we'll remove those charges from the bill," said Davis, adding "We then step in and resolve the differences with the mail-order house."

What Should You Do if the Product You Ordered Never Arrives?

If the order doesn't arrive within a day or two of the date the salesperson promised, call back. Be sure to have the invoice number they gave you when you placed the order, the check number or credit card number used for payment, and know the date on which you placed the order. Ask to speak with the same salesperson who took the order. They should be able to trace your order in a few minutes. If their records indicate you should have already received the shipment, it's time to place a tracer. The dealer will begin a search from their end and you can help by contacting the courier on your end. If the missing product was being shipped by U.S. mail, you should contact the local post office and fill out tracer form #PS1510.

> What if they charged me more than they had agreed to over the phone? What if the system never arrived?

You should know that the law states that your merchandise must be shipped within 30 days after the company receives your order or they are obligated to notify you giving you the opportunity to cancel your order.

What if the Product is Damaged?

Don't assume the item is defective (unless damage is visible) until you read and understand the manual. I know from embarrassing personal experience that more often than not it is the would-be user's ignorance of a product which prevents it from working than the fault of defective or damaged merchandise. I receive an average of five UPS or U.S.P.S. packages every week. The only product I've received that's been damaged in the mail has been a few 5.25-inch diskettes which were shipped without protective packaging.

My most embarrassing moment (weeks is more accurate) came when I shipped a monochrome monitor back to California *twice* (yes, two errors on my part) because I didn't fully understand the manual or the salesperson's explanation. After that experience I now know to reread the manual before hitting the panic button. Normally you have a 10-day grace period within which to give notice to the shipper and dealer that a product is either defective or was damaged in transit. The same is true of mailing a product's warranty card. I never send the warranty card until I'm satisfied the product is operating as it should. Once the warranty card is mailed, most sellers, retail as well as mail-order, will ask you to return the product to the manufacturer instead of to them for warranty coverage. But if you notify the mail-order dealer (within the time limits) before mailing the warranty cards, they will normally replace a defective item.

If the product is damaged in transit, the carrier (UPS, Federal Express, U.S.P.S., etc.) must be notified as soon as you detect the problem. Of course, if possible, do not accept delivery of a package if discernable damage has been done. If the damage was caused by the courier's handling of the product, they will pay for replacement. In the case of the Postal Service, it is important that the shipper supply adequate insurance coverage on any package.

Murray Dana, General Manager of Montgomery Grant, emphasizes that the buyer needs to let the mail-order house know as quickly as possible if a product is defective or damaged. "As soon as you detect something is amiss, notify us. And be sure to have the invoice number from the packaging slip when you call," said Dana. "We can usually replace the item quickly. But it's important to notify us quickly before you fill out any warranty cards."

What if the Wrong Product is Delivered?

Notify the dealer as soon as you recognize the error. Do *not* open erroneously received software packages. Doing so is frowned upon by the seller for obvious reasons and will make them hesitant to replace. If the wrong package is hardware, again notify the dealer who will instruct you as to how to ship it back for a refund or exchange. But don't assume the item printed on the outside of a shipping box is exactly what is inside. Dealers often ship orders in whatever box is available with enough room for both the purchase and some protective packaging material. The result is that the box you receive may list the contents as a microwave oven instead of the computer you ordered. Go ahead and look, chances are what you ordered is inside. But if it turns out to be a microwave oven, stop right there, call the mail-order house and explain the problem. I wouldn't worry about receiving the wrong

product. I once ordered a box of 3.5-inch disks and received 5.25-inch floppies instead. Rather than instructing me to return the larger disks, the dealer apologized for the mix-up, told me to keep the floppies as a gift and overnight-expressed the right disks at no additional charge. I've found that most reputable dealers will bend over backwards to correct mistakes.

What if You Get Something You Didn't Order

You can let your conscience be your guide on this matter. Ray Hilton, my local Postmaster, says the law protects the receiver of unsolicited products. "If the receiver has no knowledge of the item, he or she is not required to pay for or return the item," said Hilton. If the dealer who erroneously sent the item should harass the recipient for either payment or return of the item, the recipient should notify the Department of Consumer Affairs in their state. Hilton says a simple telephone call to them usually stops the harassment. He quickly adds that the person who received the goods should double check to make sure the product was not ordered without their knowledge. "Always check with family members—especially children," he said, "to be sure the package was really not ordered."

What to do if the Company Goes Bankrupt

This is a tough situation at best says attorney Robert Pitts, who specializes in bankruptcy cases. "The biggest problem you'll encounter is being a resident in one state while the bankrupt company is in another. How do you know the company has filed for bankruptcy? Hopefully the court finds evidence of a purchase which has not been shipped and will notify you. When they do, you need to then fill out a 'Proof of Claim' form, which you can get at most office supply stores or the county courthouse," said Pitts. Normally unfilled orders for less than $900 are settled first by the courts, so the little guy isn't always out of luck. The big problem said Pitts, "is not knowing if a company has filed for bankruptcy. The first hint you (the buyer) might have is when you call and find that number has been disconnected."

The Ten Commandments of Placing A Mail Order

(1) Scan the ads in several magazines and clip those which have the best prices. Then with those in front of you, begin calling.

(2) When the call goes through, identify yourself, ask for the salesperson's name, and state exactly what you're interested in buying. Tell the salesperson the name of the product and, if you know it, the manufacturer's name too. (Don't waste time with idle chatter. Regardless of who's paying for the call it is costing, plus the salesman is probably paid on commission, so even though he wants to satisfy your inquiries about his products, he's too busy to discuss the weather.)

(3) It's important to identify which system you intend to use the peripheral or software on. For instance, if you are buying Timeworks' *Partner* be sure to identify whether you want the 64 or 128 version (if you don't make this clear, you might find the IBM version on your doorstep by mistake).

> When shopping beware of unbelievably low prices—often they are either intentionally misleading or disguised package deals. Don't assume the price listed in the magazine ad is set in stone.

(4) Ask for the current price (this can avoid some embarrassing, difficult-to-resolve misunderstandings).

(5) Next ask which version of the product they are shipping. This makes a big difference. As an example: if you simply say you want the Xetec interface they have on sale, you may be disappointed to find the Junior version delivered when you intended to order the Super Graphix version. The same is even more important when ordering software. Most productivity programs are changed or updated periodically, and you want to be sure to buy the most current version. Unless you ask, the wonderful program you order at a bargain price may actually be an earlier version the store owner is discounting to clear out his warehouse. Of course, this may be exactly what you want, but unless you ask, you won't be sure until you open the box in your own home.

(6) A key question I sometimes forget, is to ask if the product is in stock. Some mail-order houses sell from a list, not from what's on their shelves. This is especially true of new items. Once they receive your order, they turn it around and order it from their distributor. Whether this will delay your order depends upon whether the distributor sends it to the mail-order house, who must then repack it and forward it to you, or if the distributor will ship it directly to you. Most mail-order houses will take your order, even if they don't have the product in stock and will fill it as fast as they can. But if the salesperson tells you the product is on his shelves, you can expect faster delivery which takes us to step seven.

(7) Once you've committed your credit card to a purchase, you want to get your hands on the item. So ask the clerk how the order will be shipped (overnight courier, First Class mail, regular UPS, etc.) and how long you should expect before delivery. Some mail-order dealers will rush your order at no extra charge if you ask for rush treatment. Depending upon their shipping procedures this could cut a day or two off the delivery time. But you must ask for rush treatment! All houses will deliver a purchase overnight as well if you are willing to foot the extra shipping charges.

The clerk should be able to tell you when your order will leave their shipping department and the day you can expect delivery. Be sure to get the invoice number for your purchase and write it down along with the expected shipping and delivery dates where you won't lose them. If something goes wrong you'll need that information to correct it. If the product doesn't materialize within a day or two of the date they promised, you should call back, ask for the salesperson you placed your order with, and ask him or her to trace your order. I've never had an order misplaced, but there is always a first time. Having the information you need to correct the problem is half the battle.

(8) Be sure to ask exactly what your charges will be—including shipping and credit card fees. If the total they quote doesn't match your own math, ask the salesperson to list the charges line by line. If there is an extra charge, be sure you understand what it is for, so you both agree upon the total charge before you finalize the purchase.

(9) All products should carry a manufacturer's warranty. Make sure the salesperson understands that you expect a new warranty on each item. Also ask what satisfaction guarantee, separate from the product manufacturer's, they offer. If your purchase is for hardware, most sellers will guarantee it to arrive in working order and will stand behind this promise

separate from the manufacturer's. This means if something goes wrong, they will replace it (within a reasonable time) without you having to ship it to the manufacturer. This can save a great amount of time and grief. I would never buy from a seller who wouldn't guarantee the product to perform as advertised and to arrive in working order.

Mail-order houses still cater to those customers who live far from the products they need, and in 1988 that often means computer and software customers.

(10) Before you hang up, ask who to contact if something should go wrong—the product doesn't arrive, is damaged or the wrong product is shipped. Getting this information when you place the order can simplify and speed satisfaction if a problem does arise. If the salesperson can't supply that information without hesitation, think twice before finalizing the deal—hesitation to give that information now could disguise an eternal headache just waiting to torture you later. Reputable dealers have established procedures for taking care of their customers' problems and their sales force should be ready to share that information.

Conclusion

Regardless of whether you are shopping by phone or in a mall, the key to saving money and being happy with your purchase remains the same—think, compare and read the fine print. If you'll follow the suggestions offered here, you should find that using your fingers to do your shopping is not only easy and relatively risk free, but can also save you both money and time.

Agencies to contact with a complaint if all else fails:

Chief Postal Inspector
U.S. Postal Service
Washington, D.C. 20260-2161

Direct Marketing Association
6 E. 43rd Street
New York, NY 10017

Council of Better Business Bureaus
1515 Wilson Blvd.
Arlington, VA 22209

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The televised version of this show pitted two five-member families against each other as they tried to match the answers given most often in a survey of one hundred people. Although this computerized rendition will still accommodate the ten-person format, the program is even willing to entertain a single sibling in a satisfying computer match. Regardless of how many eager participants you have gathered around your Commodore, you'll always be in good company, for every contest opens with the appointment of a groomed and manicured video family for each opposing side. There's Dad, Mom, Sis and two Brothers, all eager and smiling as they stare out at you from inside your monitor. Treat them as you would your own, for they will be your on-screen representatives and rooting section—cheering, jumping and laughing when your answer is among those posted, and frowning, sulking and yelling when your guess is dismissed.

To start each of the game's four rounds, two opposing family members come forward to center stage and square off for the opening toss-up question, which appears along the screen's lower edge. The player who can supply the more popular answer to this survey query is then given control of the round. This means he can either "play," betting that his squad will come up with the rest of the answers, or "pass" off that responsibility to his opponents. If and when the "playing" team gets three misses, the other family is given the chance to win the round by guessing any one of the remaining answers.

It's all here, from the big yellow survey board and multi-level family podiums to some catchy theme music and nail-biting Fast Money bonus rounds. ShareData has successfully captured both the play and feel of the show, carefully supplying just enough audio/visual extras to dress things up without disturbing the pace of play. What's particularly impressive in this game is the intelligence of unseen computer judge, who recognizes synonymous or related answers as correct matches. For example, if the answer is "hosiery" and you type in "socks," the response will be deemed correct, and the points awarded. The game has brains.

Interesting and involving, *Family Feud* has the potential to produce many thought-provoking discussions and humorous responses. When you finish play and finally say good-bye to your new-found relatives, you'll wonder where the hours went.

Jeopardy

ANSWER: A sedate and serious game show, where three contestants, given a specific yet often cryptic answer, must prove their superior intelligence by quickly and accurately supplying a matching question.

The tension, excitement and challenge have all been captured on disk to provide what promises to be an enjoyable, yet humbling experience.

QUESTION: What is "Jeopardy?"

Long lauded as the toughest of television's game shows, ShareData's Commodore version comes across with just the right level of subdued, taut energy. Play a couple of rounds against some skilled friends or the highly educated computer, and you'll actually leave the keyboard exhausted from the mental workout.

Three separate screens are utilized in the reproduction of this contest, in effect mirroring the three basic camera shots used in this game's televised twin.

The first is the head-on angle of all three contestants, as they look out from behind their electronic podiums at an unseen emcee. The program's designers decided to have a little fun with this screen, cashing in on a chance to parody some of the typical stereotypes who seem to frequent this stage. Before the contest begins, each contestant is given the chance to thumb through an assortment of video characters to personally choose the sex and appearance of his on-screen surrogate. What can't be judged from this visual selection is the personality that will accompany the face. This will only become apparent when the contest begins, and some embarrassing but amusing idiosyncracies begin to surface. For example, in my corner, I've had the calm and collected businessman, who would show no emotion, win or lose, aside from the periodic adjustment of his tie; the short wimpy bookworm, who peered through oversized spectacles and actually pouted in disbelief whenever his answers were judged incorrect; and the chisel-faced, toothy macho man, who would go so far as to pound his fist whenever he beat his opponents to the buzzer. It's a lighthearted touch aimed at softening this contest's stodgy reputation. But make no mistake, when the challenge commences and there's money on the line,

this simulation is all business.

The pivotal game screen is the world-renowned big blue board, a large sectioned structure that provides five boxes of increasing value for each of the round's six answer categories. When a player specifies the box he would like revealed, the screen switches over to a close-up view of the square, where the answer can the be easily read. Each contestant is given a button on the Commodore keyboard to act as his buzzer. If he thinks he knows the question to answer, he must signal and type out his guess within a thirty second time limit. This half minute allowance might seem a bit liberal to some hard-core "Jeopardy" followers, but it's only so that those who hunt and peck will have the same opportunity as those who touch type.

If you give a correct answer, the crowd cheers, your score is increased and you are awarded the honor of choosing the next answer. If you give a wrong response, after the audience groans, the cash value will be subtracted from your total. The round continues until all thirty answers have been revealed.

All the familiar parameters of play have been included. After the initial session, there's Double Jeopardy, where the dollar values are doubled, and the Final Jeopardy, where each contestant secretly bets a percentage of his earnings before viewing the contest's last answer. And of course, throughout each round, there are the randomly positioned, ever-popular Daily Doubles. The game boasts "hundreds of categories with over a thousand questions." That's enough to keep any trivia buff busy.

One of the nicest features of this program is how the computer players try to keep pace with their human opponents. If you open a sizeable lead, their trigger fingers will tap a little quicker, and their IQ's will seem to inch up a notch or two. On the other hand, if you hit a noticeable slump, your challengers will actually answer a couple of questions wrong to keep things tight. It makes for exciting, tense play, game after engaging game.

If there's one more alluring element that is common to each ShareData package, it's their relatively low purchase price. If you're attracted to the type of competitive entertainment that a television game show can provide, then you can go out and pick up all three programs for under forty dollars. For that price, you'll also get yourself an education. For after a few rounds with each contest, you'll probably learn that you're really not as smart as you think. At least you won't have to go on national TV to prove it.

Hints to help you add to your jackpot earnings:

Wheel of Fortune

- Buying vowels can be a sound puzzle-solving gamble, but the key to a successful purchase is the timing. Vowels should only be bought when a fair number of consonants have been turned over and you are still uncertain of the puzzle solution.
- Since the money values on the wheel increase with each round, the spins become more valuable as the game goes on. With this in mind, it would be a good strategy to try to save any "Free Spins" for the later rounds, since their potential worth will only increase. Unless there's a large amount of money at stake and the puzzle solution is so obvious that the next contestant will surely cash in, never use your Free Spin bonus in the first round.

Family Feud

- In the television version of this game, there could be a perceived advantage to passing control of a question over to the competing team, since each opposing family member would then be forced to answer as an individual, while your squad could confer and brainstorm to arrive at a group decision. After all, five heads are better than one. But if you're up against the computer or a single competitor in the ShareData rendition, that strategy is obviously useless. In that situation, it is usually better to remain in the driver's seat by keeping control of the question.
- When playing against the computer, always let the opposing family member win the initial face-off portion of the round. As a rule, they will never offer the "number one" answer to the survey question. As long as you can top their response with a more popular one, you can still gain control of the question and will have one less solution to uncover.

Jeopardy

- Unlike its network cousin, the computer version of *Jeopardy* is not constrained by commercial obligations or time slots, so you can be sure that both big boards will be fully uncovered by the time Final Jeopardy rolls around. But due to the presence of the Daily Doubles, where only the player who selects the square is given the opportunity to wager money, it still makes sense to choose the category you know best whenever you are given the chance. ■

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published and decided to make a set for this game."

This inspiration for the blueprints is just one source of ideas for Meretzky. He likes read to science fiction stories and certainly has some experience in the realm. All of his stories except *Sorcerer* fall into that category. Meretzky claims that this "was semi-unintentional. I had many ideas and it just happened that the ones that were chosen as my next project were in the science fiction genre." When asked whether any of the characters in his stories were binary counterparts of real-life people, Meretzky responds, "Perhaps the ambassador in *Planetfall* was like a physics teacher I had in high school, but that's about it."

Stationfall should not be overlooked if you're looking for a good challenge that is also a lot of fun. The game is never boring, nor does it allow entering commands without thinking about what you're doing. There are some unique puzzles that have never been on disk before, notably the mystery of the dots on the wall of the alien ship you find in a docking bay. Your brain cells will be challenged, and your appetite for a good story will be satisfied.

The plot of *Stationfall* has no holes and so many sources of revelation that only a veteran designer like Meretzky could have pulled it off. Instead of being just another adventure, *Stationfall* reads like a good novel and is exemplary of what interactive fiction is all about. I strongly recommend it for those not familiar with this type of game. Meretzky was happy with the way *Stationfall* turned out and found "it was nice going back to Floyd, kind of like rediscovering an old friend."

I have a few hints that might be of some use to the person stuck in *Stationfall*. Don't overlook any description; read every response carefully. Experiment with the different objects around the ostrich and Arcturian balloon creature—eventually, you'll find out what "moves" them. Some items perform the same function, so make sure you've used the best one for the job or you may have to return to an earlier part of the game. Read any papers or notes laying around and examine other sources of information. Be careful around machinery after the second day—it could be dangerous. When I asked Meretzky for tips on how to play one of his games, with an attempted straight face, he replied, "I honestly don't know. I never play Steve Meretzky games—I just write them!" This is the mind you have to deal with—good luck! ■

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F-15 Strike Eagle: When you first start flying, immediately cut power to 55% by pressing zero. This speed uses only three fuel units at a time. Engage afterburners, and you still use only three pounds of fuel at a time! In this way, you can fly around at close to Mach 2 for a long time, racking up a very nice score along the way.
Shawn W. Scanlan
Toronto, Ontario
Canada

Faery Tale Adventure: Go to the watch tower (find it on your map), enter it and get the shell you find inside. Then stand close to a large river or lake and use the shell. Seconds later, a turtle will come. Ride it.
Abbott Wang
Greenville, Texas

Fight Night: 1. To beat Dip Stick, concentrate on hitting him in the head. Force him into a corner and punch him out. But watch his low sucker punch. 2. Work on Kid Kastro's cigar. Watch out for his fancy footwork and his Superblow. 3. Beat Hu Him by faking him and using body punches. He has a cement head and a vicious Superblow. 4. Keep Bronx Bomber in the center of the ring. If he catches you in a corner, you're dead.
Robert Wu
Monterey Park, California

Flight Simulator I and II: If you have trouble with stalling during takeoff, before starting your engine push the joystick forward until the pitch marker is at the bottom. You can then take off stall-free unless you push the pitch indicator all the way up. (You may go down a bit before you are airborne, but don't let it worry you).
Nathan Semonik
Address Unknown

Flight Simulator II: If you need fuel when there are no airfields around, just hit "E" to go into Edit mode. When you exit back to flying, you'll be right where you were before, but with full tanks!
John T. Alsobrook
Benton, Kentucky

Flight Simulator II: If you own this game and Sublogic's *Jet*, you can play a super version of *Flight Simulator II*'s World War I Ace game. Boot up *Jet* and choose the right type of monitor. Remove the *Jet* disk and insert *Flight Simulator II*. Choose Dogfight on the Game Mode menu, then choose the skill level that best suits your pilot capabilities. After choosing your aircraft and armament, you'll be able to play a mixture of *Jet* and World War I Ace. I call it the World War I Jet Ace game!
Ron Gregorsok
Bowling Green, Ohio

Friday the 13th: Get the red axe for a weapon. It is stronger and better than Jason's weapon.
Mark Brenner
Chattanooga, Tennessee

Gateway to Apshai: You can multiply your score for a treasure if the treasure is trapped by other than the Freeze and Teleportation traps. To do it, use Locate Trap; when you see the flashing skull on the treasure, walk back and forth over the treasure while pressing the fire button. You'll get up to seven times the original point value for the treasure.
Mark Montgomery
Greensboro, North Carolina

Gateway to Apshai: You can stop the clock in this game by calling up your status or weapons screen.
Kevin Walsh
Hopkinton, Massachusetts

Ghosts 'N Goblins: When fighting the Unicorn, there is a special area where you will be immune to all attacks. On the first screen, it is in a little bit from the left edge of the gate. Straight weapons (javelins, swords and crosses) are always better than arc weapons, because arc weapons can't go over graves.
Troy Nesfeder
Bethlehem, Pennsylvania

Goonies: To start on a selected level, press the F5 key then the F7 key for each level you want to move up.
Unknown Contributor
Brossard, Quebec
Canada

Hard Hat Mack: To get quickly to the last screen: When the title screen appears, press the keys 1 through 9 in order. Then press the zero key.
Richard Penn
Montreal, Quebec
Canada

Jumpman: Type these two lines and insert your *Jumpman* disk into the drive. Enter RUN and enjoy *Jumpman* Immortality!

```
1 IF A=0 THEN A=1 : LOAD "INTRO.SYS",8,1
2 POKE 24015,173 : POKE 54296,15 : SYS 36864
```

Mitchell Anstine
Central Point, Oregon

Jumpman Jr.: To get unlimited lives, do this:

```
LOAD "JUMPMAN JR.",8
POKE 9450,173 : RUN
```

Bobby Brickhouse
Address Unknown

Karateka: You can let your man fight for you by holding the fire button down once you are in the fighting position. I have reached the palace entrance this way.
John M. Lyle
Tiskilwa, Illinois

Kronis Rift: After the fourth Rift, your firepower becomes useless against Guardians' shields, unless you find new Modules. As you leave your scoutcraft, move toward the nearest Module, count to ten seconds then immediately call the ship. By doing this over and over, you'll get closer to the Module without encountering any Guardians.
Robert Wu
Monterey Park, California

Kung Fu Hero: When you are on the first floor and facing left, press SHIFT and the letter "G." A shooting gun will appear in

your hand! This is useful for killing the villain at the end of the floor, and will also kill any number of people who are approaching from the left. If you remain motionless a few seconds after firing, the author's name will appear on the screen.
Asanka Pitawala
Bronx, New York

Kung Fu Master: An easy way to beat the enemy at the end of each hall is to turn around when you get to him and walk back to the beginning of the hall. Instead of arriving at the beginning, you'll end up behind the enemy, where you can easily beat him up. Move fast when you do this, because as you use time, you reduce the number of points you get.
Byron Henderson
Address Unknown

Kung Fu Master: To beat the fourth floor guard, all you have to do is use a low punch. Push the joystick down and press the button as fast as you can.
Chih Chiang
Salisbury, Maryland

Kung Fu Master: To kill the final attacker on the fifth level, hit him with a middle kick, then a low kick, then a flying kick. Finish him off by running at him while throwing low punches.
Steve Blay
Miami, Florida

Leader Board: When you're playing Novice at the 11th hole on the first course, use a nine iron (9I). This should give you a hole-in-one every other time.
Clay Rose
Address Unknown

Legacy of the Ancients: 1. When you start a new character, immediately find weapon and armor training shops to improve his dexterity and endurance points. (The greater your character points, the harder you are to kill). 2. Never try to rob a bank in a town if you are weak. (The guards will attack you). 3. Healing Herbs can only be purchased and used after you view the Herb of Life exhibit in the Museum. 4. Museum exhibits are all vital in retrieving the Compendium from the evil Warlord. The Test, The Four Jewels and The Pirate's Treasure will help you find the three dungeons in Tarmalon. The Pegasus exhibit helps you ride the winged horse.
Robert Wu
Monterey Park, California

Little Computer People: To learn the complete vocabulary of the *Little Computer People Discovery Kit,* load your *Little Computer People* disk, reset the computer, then type this program, and type RUN <RETURN>:

```
1 FOR A=49721 TO 51545 : B=PEEK(A)
2 IF B=33 OR B=64 OR B=128 THEN B=44
3 IF B<>44 OR C<>44 THEN PRINT CHR$(B); : C=B
4 NEXT
```

Bobby Anastario
Address Unknown

Mail Order Monsters: Isn't it unfair how you only get $250 at the Tournament level? To increase your cash, use two-player mode. Buy whatever you like for your own Morph, but for the second player, buy something with very few hit points. Then blow it away a few times to get more money.
Robert Grzesek
Diamond Bar, California

Mail Order Monsters: Take your monster to the Weapons Shop and if you don't have an E-Pack, buy one for 50 Psychons. Sell your E-Pack at the shop, and you'll get 73 Psychons for it! This slick trick only works once per monster.
Ben Gold
Berkeley, California

Mail Order Monsters: When you've lost a battle in the Tournament and the computer asks you to insert the Owner's Disk, just power down instead. You won't lose any Psychons or weapons.
Chih Chiang
Salisbury, Maryland

After choosing your aircraft and armament, you'll be able to play a mixture of *Jet* and *World War I Ace.*

Mail Order Monsters: To find the password for any owner on your disk, just LOAD "owner name",8 then LIST. It's as simple as that.
Jeromie Carr
Pine, Colorado

Marble Madness: At the sixth or seventh level, gravity changes so you have to go uphill. Go to the top where you can see a green marble and a black one. If you want to lose quickly, hit the black marble. If you want to get extra time, run into the green one.
Tim Sparks
Minford, Ohio

Matrix: To move to the next stage, simultaneously press SHIFT, CONTROL, RUN/STOP and COMMODORE.
Lucy S. Terrier
Alton, Illinois

Miner 2049'er: For an unlimited number of lives, enter POKE 9450,173 : POKE 2652,165 : POKE 2471,255
Lil Willard
Marietta, Ohio

Moon Patrol: If you press the space bar, this game will pause until you press it again or press the fire button. Don't be concerned if the screen changes color while on a pause — it will return to its normal color when play resumes.
Michael Saunders
Las Vegas, Nevada

One-on-One: In PRO computer, when the computer runs back to clear the ball, run under the basket and stand still. If you're in the right position, the computer will charge you almost every time.
Deepta Bhattacharya
Address Unknown

Operation Terminal: Try to keep your batteries charged so you can activate the jamming mode before entering a new room, keeping bombs in the room from exploding. This is especially important when you are competing against a human, since humans can booby trap rooms that you thought were safe.
Robert Wu
Monterey Park, California

Pac-Man: To get unlimited lives in this game for the 64, just LOAD "PAC-MAN",8,1 then type:

```
POKE 34943,234 : POKE 34944,234 : POKE 34945,234
SYS 32760
```

The ghosts will fly right through you.
Andy Macaninch
Newtown, Pennsylvania

> If you absolutely have to win a game, here's a foolproof way to do it.

Paperboy: To get a great score at the end of the day, deliver the paper to only one house, then do as much destruction as you can. Break windows, yank lids off garbage cans, and so forth.
Myong Paek
Portland, Oregon

Phantasie: Run away from the Black Knight or you will lose all your gold. Buy scrolls and then use them to print out onto paper. They will help you in the long run.
Ivan Moore
Address Unknown

Pirates: If you attack on land, hide your armies in the woods. Use one of your groups as a decoy to get the enemy to approach. You'll be surprised when you beat an army twice your size.
Lance Gater
Trenton, New Jersey

Pitfall: When you are about to fall down a hole with a ladder after jumping a log, push down and you'll catch the ladder without losing any points.
Michael Baumgart
Address Unknown

Pitstop II: At the start of the race when playing the computer, ram its car until you both get blown out tires. The computer has to change its offside tire, while you only have to change your nearside one. This gives you a head start once your tire has been changed.
R. N. Gutierrez
Veracruz, Mexico

Project: Space Station: With this tip you can gain millions and millions of dollars. When you are planning your mission budget, put all your money into either the Modules or Equipment category. Then go to that category and start spending. You should notice after you buy the first item that the money you started off with has doubled! Keep spending, and when you get down to $11,000 million or so, it again will jump to $19,000 million.

Then go back to the budget screen, transfer every cent to the other category (Equipment or Modules), and repeat the procedure. When you've bought lots of stuff and are back up to $19,000 million, go back to budgeting and divide your money evenly among R&D, Operations and Planning. You're now very well off, and should do quite nicely for the rest of the game.
Joel Steudler
Pittsburgh, Pennsylvania

PSI 5 Trading Company: If there are no enemy ships in the area, rank engines priority 1. When an enemy appears, put it back to 3. This will gain you extra time.
Lance Gater
Trenton, New Jersey

Q-bert: You don't have to wait until the end of the game to start over. Just press the RESTORE key.
Matt Massa
Tomahawk, Wisconsin

Raid Over Moscow: When you've loaded the game, wait a minute or two and the computer will start playing by itself. When it gets to the screen you want to play, push the joystick button and take control of the game.
Chih Chiang
Salisbury, Maryland

Raid Over Moscow: Here's a good trick for the first screen. When the bell rings, simultaneously press RUN/STOP and the "Q" key. This will get you to the launch site screen where you have to shoot the center missile silo. You also will have nine men to shoot the silo.
Sean Kim
Tacoma, Washington

Realm of Impossibility: Sometimes you can cheat by walking on the background. The mystical monsters cannot touch you there.
Jerry Wyatt
Junction City, Ohio

Revenge of the Mutant Camels: To get smoothly into cheat mode, press "O" for options mode, then type "OATS" and play the game. Apparently the camels like the food.
Daniel Kortschak
Beulah Park, Australia

Roadwar 2000: Don't go into Fort Knox. Go to Mountain View for Doctor, Drill Sergeant and Politician.
Lance Gater
Trenton, New Jersey

Sargon II: Are you tired of losing to your computer? Try these moves at level 2 or 3, and ignore Sargon's moves. Open with A2-A4 and follow up with C2-C3, E2-E3, A4-A5, D1-A4, A5-A6, F1-B5, A6xB7, B5xC6, C6xD7, B7xA8 — Checkmate!
Robert A. Eckel
Farmington, Michigan

Seven Cities of Gold: When you have a good number of men, head for the Inca city that has a blue mark on it. It is the capital and has a lot of gold.
Lance Gater
Trenton, New Jersey

Seven Cities of Gold: In this game you have to explore North, Central and South America after buying men, food, ships and goods. But if you buy only one ship and one man, you can cruise for two years without buying food!

Using this tactic, I sailed from Europe to the Mississippi River, then walked up to the Great Lakes and back, finally returning to Europe, all on no food.
Marc Meleney
Millersville, Maryland

Skyfox: Go for the motherships first, then destroy the tanks and then the planes. If your base is destroyed, you can still win if you destroy all the planes, tanks and motherships.

Use laser cannons mostly, save heat-seekers for motherships, and use guided missiles against planes that are alone.
Allen Morano
Address Unknown

Spell of Destruction: When entering an unfamiliar room for the first time, you never know what you're up against. It's wise to stay near the door so you can listen for the tell-tale music, wait for the attacker to show itself, then make an emergency exit. Once you're outside, you can prepare the proper spell and work out your strategy against the aggressor.
Robert Wu
Monterey Park, California

Spy Hunter: Wait until the road widens, then drive over to the right edge, not completely on the black border and not totally in the trees, but halfway between the two. Increase your speed to maximum and relax until around 12,000 points. At that time avoid the limousine. This trick allows you to skip the boats and the helicopters. But if you ride over water past the broken bridge this way, the bridge will keep coming until you go into your speedboat.
David Bennett
Matthews, North Carolina

Spy Hunter: When you're dropped off by the weapons van, next man, truck or tug boat, stay behind it for as long as possible. This will wipe out most dangers such as mines, cars and boats.
Nathan Gibbs
Fernandina Beach, Florida

Stealth: You can get extra power by going through the positive power fields. If you go through slowly, you can get several times the usual amount of fuel.
Harry H. Eleas
Bristol, Tennessee

Summer Games I: In the 4x400 Meter Relay event, you can actually do better if you lose to the computer. Let the computer win by purposely dropping the baton and going as slowly as possible. With practice, your time can be just under two minutes.
Jonathan Stapinsky
Winnipeg, Manitoba
Canada

Summer Games I: If you disqualify yourself in the 100 meter freestyle, you'll always get the gold medal.
Deepta Bhattacharya
Address Unknown

Summer Games I: In the 100 Meter Dash, the object is to gain speed by jiggling the joystick as fast as you can, either up and down or from side to side. You can do it more comfortably by moving the joystick in circles, either clockwise or counterclockwise.
Jonathan Stapinsky
Winnipeg, Manitoba
Canada

Summer Games I: In the Pole Vault event on the 6 meter or higher bar, choose the low pole grip and go under the bar. It works, but you have to practice it.
Chih Chiang
Salisbury, Maryland

If you disqualify yourself in the 100 meter freestyle, you'll always get the gold medal.

Summer Games II: For a little extra distance in the Triple Jump, push the joystick up after each maneuver. For example, right, up, right, up, left, up. Using this trick, I raised my maximum distance from 17.15 to 17.55.
Chris A. Bonk
Glenavon, Saskatchewan
Canada

Supercycle: This will help you master the quick turns. Watch the lane dividers at the top of the screen. These change direction, indicating the direction of the next curve. Then when the curve comes up, you'll know which way to turn. This is useful when you've become disoriented after ducking and dodging other motorcycles.
Sidney Blaylock
Address Unknown

Superstar Ice Hockey: If you absolutely have to win a game, here's a foolproof way to do it, provided you have 500 to 600 trading points. Draft a goaltender with absolutely no skills, then trade him to the opposition for all of your trading points. The trade should be successful, and when it is, you can score on every shot on goal. Another powerful tactic works when you have control of the puck in the opposition end. Skate to the side of the net onto the boards closest to you. Then skate up to the goalie and jam a pass into the short side. If it is done correctly, it has a 70% efficiency rate going left to right and 95% going right to left (second period). Don't push this one — it led me to two consecutive undefeated seasons!
Chris A. Bonk
Glenavon, Saskatchewan
Canada

Swiss Family Robinson: Aloe is good for bee stings. The cave makes a good shelter.
Lance Gater
Trenton, New Jersey

Tag Team Wrestling: When playing the computer, keep him in your corner and tag off after every two moves. When the darker guys are out of the ring and you are on the apron, run to the

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HOW TO ENTER PROGRAMS

The programs which appear in this magazine have been run, tested and checked for bugs and errors. After a program is tested, it is printed on a letter quality printer with some formatting changes. This listing is then photographed directly and printed in the magazine. Using this method ensures the most error-free program listings possible.

Whenever you see a word inside brackets, such as [DOWN], the word represents a keystroke or series of keystrokes on the keyboard. The word [DOWN] would be entered by pressing the cursor-down key. If multiple keystrokes are required, the number will directly follow the word. For example, [DOWN4] would mean to press the cursor-down key four times. If there are multiple words within one set of brackets, enter the keystrokes directly after one another. For example, [DOWN, RIGHT2] would mean to press the cursor-down key once and then the cursor-right key twice. Note: Do not enter the commas.

In addition to these graphic symbols, the keyboard graphics are all represented by a word and a letter. The word is either SHFT or CMD and represents the SHIFT key or the Commodore key. The letter is one of the letters on the keyboard. The combination [SHFT E] would be entered by holding down the SHIFT key and pressing the E. A number following the letter tells you how many times to type the letter. For example, [SHFT A4,CMD B3] would mean to hold the SHIFT key and press the A four times, then hold down the Commodore key and press the B three times.

The following chart tells you the keys to press for any word or words inside of brackets. Refer to this chart whenever you aren't sure what keys to press. The little graphic next to the keystrokes shows you what you will see on the screen.

SYNTAX ERROR

This is by far the most common error encountered while entering a program. Usually (sorry folks) this means that you have typed something incorrectly on the line the syntax error refers to. If you get the message "?Syntax Error Break In Line 270", type LIST 270 and press RETURN. This will list line 270 to the screen. Look for any non-obvious mistakes like a zero in place of an O or vice-versa. Check for semicolons and colons reversed and extra or missing parenthesis. All of these things will cause a syntax error.

There is only one time a syntax error will tell you the "wrong" line to look at. If the line the syntax error refers to has a function call (i.e., FN A(3)), the syntax error may be in the line that defines the function, rather than the line named in the error message. Look for a line near the beginning of the program (usually) that has DEF FN A(X) in it with an equation following it. Look for a typo in the equation part of this definition.

ILLEGAL QUANTITY ERROR

This is another common error message. This can also be caused by a typing error, but it is a little harder to find. Once again, list the line number that the error message refers to. There is probably a poke statement on this line. If there is, then the error is referring to what is trying to be poked. A number must be in the range of zero to 255 to be poke-able. For example, the statement POKE 1024,260 would produce an illegal quantity error because 260 is greater than 255.

Most often, the value being poked is a variable (A,X...). This error is telling you that this variable is out of range. If the variable is being read from data statements, then the problem is somewhere in the data statements. Check the data statements for missing commas or other typos.

If the variable is not coming from data statements, then the problem will be a little harder to find. Check each line that contains the variable for typing mistakes.

OUT OF DATA ERROR

This error message is always related to the data statements in a program. If this error occurs, it means that the program has run out of data items before it was supposed to. It is usually caused by a problem or typo in the data statements. Check first to see if you have left out a whole line of data. Next, check for missing commas between numbers. Reading data from a page of a magazine can be a strain on the brain, so use a ruler or a piece of paper or anything else to help you keep track of where you are as you enter the data.

OTHER PROBLEMS

It is important to remember that the 64 and the PET/CBM computers will only accept a line up to 80 characters long. The VIC 20 will accept a line up to 88 characters long. Sometimes you will find a line in a program that runs over this number of characters. This is not a mistake in the listing. Sometimes programmers get so carried away crunching programs that they use abbreviated commands to get more than 80 (or 88) characters on one line. You can enter these lines by abbreviating the commands when you enter the line. The abbreviations for BASIC commands are on pages 133-134 of the VIC 20 user guide and 130-131 of the Commodore 64 user's guide.

If you type a line that is longer than 80 (or 88) characters, the computer will act as if everything is ok, until you press RETURN. Then, a syntax error will be displayed (without a line number). Many people write that the computer gives them a syntax error when they type the line, or that the computer refuses to accept a line. Both of these problems are results of typing a line of more than 80 (or 88) characters.

"[HOME]" = UNSHIFTED CLR/ HOME
"[CLEAR]" = SHIFTED CLR/HOME
"[DOWN]" = CURSOR DOWN
"[UP]" = CURSOR UP
"[RIGHT]" = CURSOR RIGHT
"[LEFT]" = CURSOR LEFT
"[RVS]" = CONTROL 9
"[RVOFF]" = CONTROL 0
"[BLACK]" = CONTROL 1
"[WHITE]" = CONTROL 2
"[RED]" = CONTROL 3
"[CYAN]" = CONTROL 4
"[PURPLE]" = CONTROL 5
"[GREEN]" = CONTROL 6
"[BLUE]" = CONTROL 7
"[YELLOW]" = CONTROL 8
"[ORANGE]" = COMMODORE 1
"[BROWN]" = COMMODORE 2
"[L. RED]" = COMMODORE 3
"[GRAY1]" = COMMODORE 4
"[GRAY2]" = COMMODORE 5
"[L. GREEN]" = COMMODORE 6
"[L. BLUE]" = COMMODORE 7
"[GRAY3]" = COMMODORE 8
"[F1]" = F1
"[F2]" = F2
"[F3]" = F3
"[F4]" = F4
"[F5]" = F5
"[F6]" = F6
"[F7]" = F7
"[F8]" = F8
"[POUND]" = ENGLISH POUND
"[SHFT ^]" = PI SYMBOL
"[^]" = UP ARROW

GRAPHIC SYMBOLS WILL BE REPRESENTED AS EITHER THE LETTERS SHFT (SHIFT) AND A KEY ("[SHFT Q,SHFT J,SHFT D,SHFT S]") OR THE LETTERS CMDR (COMMODORE) AND A KEY ("[CMDR Q,CMDR G,COMDR Y,CMDR H]"). IF A SYMBOL IS REPEATED, THE NUMBER OF REPITITIONS WILL BE DIRECTLY AFTER THE KEY AND BEFORE THE COMMA ("[SPACE3,SHFT S4,CMDR M2]").

THE PROGRAM WON'T RUN!!

This is the hardest of problems to resolve; no error message is displayed, but the program just doesn't run. This can be caused by many small mistakes typing a program in. First check that the program was written for the computer you are using. Check to see if you have left out any lines of the program. Check each line of the program for typos or missing parts. Finally, press the RUN/STOP key while the program is "running". Write down the line the program broke at and try to follow the program backwards from this point, looking for problems.

IF ALL ELSE FAILS

You've come to the end of your rope. You can't get the program to run and you can't find any errors in your typing. What do you do? As always, we suggest that you try a local user group for help. In a group of even just a dozen members, someone is bound to have typed in the same program. The user group may also have the program on a library disk and be willing to make a copy for you.

If you do get a working copy, be sure to compare it to your own version so that you can learn from your errors and increase you understanding of programming.

If you live in the country, don't have a local user group, or you simply can't get any help, write to us. If you do write to us, include the following information about the program you are having problems with:

The name of the program
The issue of the magazine it was in
The computer you are using
Any error messages and the line numbers
Anything displayed on the screen
A printout of your listing (if possible)

All of this information is helpful in answering your questions about why a program doesn't work. A letter that simply states "I get an error in line 250 whenever I run the program" doesn't give us much to go on. Send your questions to:

Commodore Magazine
1200 Wilson Drive
West Chester, PA 19380
ATTN: Program Problem

Have fun with the programs!

HOW TO USE THE MAGAZINE ENTRY PROGRAMS

The Magazine Entry Programs on the next pages are two BASIC machine language programs that will assist you in entering the programs in this magazine correctly. There are versions for both the Commodore 64 and the Commodore 128. Once the program is in place, it works its magic without you having to do anything else. The program will not let you enter a line if there is a typing mistake on it, and better yet, it identifies the kind of error for you.

Getting Started

Type in the Magazine Entry Program carefully and save it as you go along (just in case). Once the whole program is typed in, save it again on tape or disk. Now RUN the program. The word POKING will appear on the top of the screen with a number. The number will increment from 49152 up to 49900 (4864-5545 on the 128) and just lets you know that the program is running. If everything is ok, the program will finish running and say DONE. Then type NEW. If there is a problem with the data statements, the program will tell you where to find the problem. Otherwise the program will say "mistake in data statements." Check to see if commas are missing, or if you have used periods instead of commas. Also check the individual data items.

Once the program has run, it is in memory ready to go. To activate the program type SYS49152 (SYS4864 on the 128), and press RETURN. You are now ready to enter the programs from the magazine. To disable the Entry Program, just type KILL [RETURN] on the 64 or SYS4867 on the 128.

The checksums for each line are the same for both the 64 and 128, so you can enter your 64 programs on the 128 if you'd like.

Typing the Programs

All the BASIC program listings in this magazine that are for the 64 or 128 have an apostrophe followed by four letters at the end of the line (e.g., 'ACDF). If you plan to use the Magazine Entry Program to enter your programs, the apostrophe and letters **should** be entered along with the rest of the line. This is a checksum that the Magazine Entry Program uses.

Enter the line and the letters at the end and then press RETURN, just as you normally would.

If the line is entered correctly, a bell is sounded and the line is entered into the computer's memory (without the characters at the end).

If a mistake was made while entering the line, a noise is sounded and an error message is displayed. Read the error message, then press any key to erase the message and correct the line.

IMPORTANT

If the Magazine Entry Program sees a mistake on a line, it **does not** enter that line into memory. This makes it impossible to enter a line incorrectly.

Error Messages and What They Mean

There are five error messages that the Magazine Entry Program uses. Here they are, along with what they mean and how to fix them.

NO CHECKSUM: This means that you forgot to enter the apostrophe and the four letters at the end of the line. Move the cursor to the end of the line you just typed and enter the checksum.

QUOTE: This means that you forgot (or added) a quote mark somewhere in the line. Check the line in the magazine and correct the quote.

KEYWORD: This means that you have either forgotten a command or spelled one of the BASIC keywords (GOTO, PRINT. .) incorrectly. Check the line in the magazine again and check your spelling.

OF CHARACTERS: This means that you have either entered extra characters or missed some characters. Check the line in the magazine again. This error message will also occur if you misspell a BASIC command, but create another keyword in doing so. For example, if you misspell PRINT as PRONT, the 64 sees the letter P and R, the BASIC keyword ON and then the letter T. Because it sees the keyword ON, it thinks you've got too many characters, instead of a simple misspelling. Check spelling of BASIC commands if you can't find anything else wrong.

UNIDENTIFIED: This means that you have either made a simple spelling error, you typed the wrong line number, or you typed the checksum incorrectly. Spelling errors could be the wrong number of spaces inside quotes, a variable spelled wrong, or a word misspelled. Check the line in the magazine again and correct the mistake.

```
10 PRINT"[CLEAR]POKING -";
20 P=49152 :REM $C000  (END AT
   49900/$C2EC)
30 READ A$:IF A$="END"THEN 110
40 L=ASC(MID$(A$,2,1))
50 H=ASC(MID$(A$,1,1))
60 L=L-48:IF L>9 THEN L=L-7
70 H=H-48:IF H>9 THEN H=H-7
80 PRINT"[HOME,RIGHT12]"P;
90 IF H>15 OR L>15 THEN PRINT
   :PRINT"DATA ERROR IN LINE";
   1000+INT((P-49152)/8):STOP
100 B=H*16+L:POKE P,B:T=T+B:P=P+1
    :GOTO 30
110 IF T<>86200 THEN PRINT
    :PRINT"MISTAKE IN DATA --> CHECK
    DATA STATEMENTS":END
120 PRINT"DONE":END
1000 DATA 4C,1F,C0,00,00,00,00,00
1001 DATA 00,00,00,00,00,0D,00,21
1002 DATA C1,27,C1,2F,C1,3F,C1,4C
1003 DATA C1,EA,EA,EA,4C,54,C0,A2
1004 DATA 05,BD,19,C0,95,73,CA,10
1005 DATA F8,60,60,A0,03,B9,00,02
1006 DATA D9,04,C1,D0,F5,88,10,F5
1007 DATA A0,05,B9,A2,E3,99,73,00
1008 DATA 88,10,F7,A9,00,8D,18,D4
1009 DATA 4C,EF,C0,E6,7A,D0,02,E6
1010 DATA 7B,4C,79,00,A5,9D,F0,F3
1011 DATA A5,7A,C9,FF,D0,ED,A5,7B
1012 DATA C9,01,D0,E7,20,2B,C0,AD
1013 DATA 00,02,20,74,C0,90,DC,A0
1014 DATA 00,4C,A9,C1,C9,30,30,06
1015 DATA C9,3A,10,02,38,60,18,60
1016 DATA C8,B1,7A,C9,20,D0,03,C8
1017 DATA D0,F7,B1,7A,60,18,C8,B1
1018 DATA 7A,F0,37,C9,22,F0,F5,6D
1019 DATA 03,C0,8D,03,C0,AD,04,C0
1020 DATA 69,00,8D,04,C0,4C,8E,C0
1021 DATA 18,6D,05,C0,8D,05,C0,90
1022 DATA 03,EE,06,C0,EE,09,C0,4C
1023 DATA CE,C1,18,6D,08,C0,8D,08
1024 DATA C0,90,03,EE,07,C0,EE,0A
1025 DATA C0,60,0A,A8,B9,0F,C0,85
1026 DATA FB,B9,10,C0,85,FC,A0,00
1027 DATA A9,12,20,D2,FF,B1,FB,F0
1028 DATA 06,20,D2,FF,C8,D0,F6,20
1029 DATA BC,C2,20,E4,FF,F0,FB,A0
1030 DATA 18,B9,08,C1,20,D2,FF,88
1031 DATA 10,F7,68,68,A9,00,8D,00
1032 DATA 02,4C,74,A4,4B,49,4C,4C
1033 DATA 91,91,0D,20,20,20,20,20
1034 DATA 20,20,20,20,20,20,20,20
1035 DATA 20,20,20,20,20,20,20,91
1036 DATA 0D,51,55,4F,54,45,00,4B
1037 DATA 45,59,57,4F,52,44,00,23
1038 DATA 20,4F,46,20,43,48,41,52
1039 DATA 41,43,54,45,52,53,00,55
1040 DATA 4E,49,44,45,4E,54,49,46
1041 DATA 49,45,44,00,4E,4F,20,43
1042 DATA 48,45,43,4B,53,55,4D,00
1043 DATA C8,B1,7A,D0,FB,84,FD,C0
1044 DATA 09,10,03,4C,84,C1,88,88
1045 DATA 88,88,88,B1,7A,C9,27,D0
1046 DATA 13,A9,00,91,7A,C8,A2,00
1047 DATA B1,7A,9D,3C,03,C8,E8,E0
1048 DATA 04,D0,F5,60,A9,04,4C,CA
1049 DATA C0,A0,00,B9,00,02,99,40
1050 DATA 03,F0,F0,C8,D0,F5,A0,00
1051 DATA B9,40,03,F0,E6,99,00,02
1052 DATA C8,D0,F5,20,96,C1,4C,12
1053 DATA C2,A0,09,A9,00,99,03,C0
1054 DATA 8D,3C,03,88,10,F7,A9,80
1055 DATA 85,02,A0,00,20,58,C1,20
1056 DATA 89,C1,20,ED,C1,E6,7A,E6
1057 DATA 7B,20,7C,A5,A0,00,20,80
1058 DATA C0,F0,D0,24,02,F0,06,4C
1059 DATA A8,C0,4C,CE,C1,C9,22,D0
1060 DATA 06,20,8D,C0,4C,CE,C1,20
1061 DATA BA,C0,4C,CE,C1,A0,00,B9
1062 DATA 00,02,20,74,C0,C8,90,0A
1063 DATA 18,6D,07,C0,8D,07,C0,4C
1064 DATA EF,C1,88,A2,00,B9,00,02
1065 DATA 9D,00,02,F0,04,E8,C8,D0
1066 DATA F4,60,18,AD,09,C0,69,41
1067 DATA 8D,09,C0,38,AD,0A,C0,E9
1068 DATA 19,90,06,8D,0A,C0,4C,1C
1069 DATA C2,AD,0A,C0,69,41,8D,0A
1070 DATA C0,AD,03,C0,6D,05,C0,48
1071 DATA AD,04,C0,6D,06,C0,8D,0C
1072 DATA C0,68,6D,08,C0,8D,0B,C0
1073 DATA AD,0C,C0,6D,07,C0,8D,0C
1074 DATA C0,38,E9,19,90,06,8D,0C
1075 DATA C0,4C,52,C2,AD,0C,C0,69
1076 DATA 41,8D,0C,C0,AD,0B,C0,E9
1077 DATA 19,90,06,8D,0B,C0,4C,67
1078 DATA C2,AD,0B,C0,69,41,8D,0B
1079 DATA C0,A0,01,AD,09,C0,CD,3C
1080 DATA 03,D0,20,C8,AD,0A,C0,CD
1081 DATA 3D,03,D0,17,C8,AD,0B,C0
1082 DATA CD,3E,03,D0,0E,AD,0C,C0
1083 DATA CD,3F,03,D0,06,20,CC,C2
1084 DATA 4C,4B,C0,98,48,68,4C,CA
1085 DATA C0,A9,20,8D,00,D4,8D,01
1086 DATA D4,A9,09,8D,05,D4,A9,0F
1087 DATA 8D,18,D4,60,20,A9,C2,A9
1088 DATA 81,20,DF,C2,A9,80,20,DF
1089 DATA C2,4C,D9,C2,20,A9,C2,A9
1090 DATA 11,20,DF,C2,A9,10,20,DF
1091 DATA C2,A9,00,8D,04,D4,60,8D
1092 DATA 04,D4,A2,70,A0,00,88,D0
1093 DATA FD,CA,D0,FA,60,END
```

END

```
5 TRAP 200
10 PRINT"[CLEAR]POKING -";
20 P=4864 :REM $1300  (END AT
   5545/$15A9)
30 READ A$:IF A$="END"THEN 110
80 PRINT"[HOME,RIGHT12]"P;
100 B=DEC(A$):POKE P,B:T=T+B:P=P+1
    :GOTO 30
110 IF T<>59382 THEN PRINT
    :PRINT"MISTAKE IN DATA --> CHECK
    DATA STATEMENTS":END
1000 DATA 4C,1E,13,4C,3A,13,00,00
1001 DATA 8E,00,F7,00,42,41,51,57
1002 DATA 0D,00,0D,43,08,14,0E,14
1003 DATA 16,14,26,14,33,14,A9,00
1004 DATA 8D,00,FF,AD,04,03,8D,12
1005 DATA 13,AD,05,03,8D,13,13,A2
1006 DATA 4A,A0,13,8E,04,03,8C,05
1007 DATA 03,60,AD,12,13,8D,04,03
1008 DATA AD,13,13,8D,05,03,60,6C
1009 DATA 12,13,A5,7F,D0,F9,AD,00
1010 DATA 02,20,5B,13,90,F1,A0,00
1011 DATA 4C,6F,14,C9,30,30,06,C9
1012 DATA 3A,10,02,38,60,18,60,C8
1013 DATA B1,3D,C9,20,D0,03,C8,D0
1014 DATA F7,B1,3D,60,18,C8,B1,3D
1015 DATA F0,35,C9,22,F0,F5,6D,06
1016 DATA 13,8D,06,13,AD,07,13,69
1017 DATA 00,8D,07,13,4C,75,13,18
1018 DATA 6D,08,13,8D,08,13,90,03
1019 DATA EE,09,13,EE,0C,13,60,18
1020 DATA 6D,0B,13,8D,0B,13,90,03
1021 DATA EE,0A,13,EE,0D,13,60,0A
1022 DATA A8,B9,14,13,85,FB,B9,15
1023 DATA 13,85,FC,A0,00,8C,00,FF
1024 DATA A9,12,20,D2,FF,B1,FB,F0
1025 DATA 06,20,D2,FF,C8,D0,F6,20
1026 DATA 79,15,20,A3,15,20,E4,FF
1027 DATA F0,FB,A0,1B,B9,EF,13,20
1028 DATA D2,FF,88,10,F7,68,68,A9
1029 DATA 00,8D,00,02,4C,B7,4D,91
1030 DATA 91,0D,20,20,20,20,20,20
1031 DATA 20,20,20,20,20,20,20,20
1032 DATA 20,20,20,20,20,20,91,0D
1033 DATA 51,55,4F,54,45,00,4B,45
1034 DATA 59,57,4F,52,44,00,23,20
1035 DATA 4F,46,20,43,48,41,52,41
1036 DATA 43,54,45,52,53,00,55,4E
1037 DATA 49,44,45,4E,54,49,46,49
1038 DATA 45,44,00,4E,4F,20,43,48
1039 DATA 45,43,4B,53,55,4D,00,C8
1040 DATA B1,3D,D0,FB,98,30,04,C9
1041 DATA 06,30,1E,88,88,88,88,88
1042 DATA B1,3D,C9,27,D0,13,A9,00
1043 DATA 91,3D,C8,A2,00,B1,3D,9D
1044 DATA 00,0B,C8,E8,E0,04,D0,F5
1045 DATA 60,4C,5C,15,4C,C5,14,A0
1046 DATA 09,A9,00,99,06,13,8D,00
1047 DATA 0B,88,10,F7,A9,80,85,FD
1048 DATA A0,00,20,3F,14,20,AE,14
1049 DATA 20,0D,43,84,FA,A0,FF,20
1050 DATA 67,13,F0,D8,24,FD,F0,06
1051 DATA 20,8F,13,4C,8F,14,C9,22
1052 DATA D0,06,20,74,13,4C,8F,14
1053 DATA 20,9F,13,4C,8F,14,A0,00
1054 DATA B9,00,02,20,5B,13,C8,90
1055 DATA 0A,18,6D,0A,13,8D,0A,13
1056 DATA 4C,B0,14,88,60,18,AD,0C
1057 DATA 13,69,41,8D,0C,13,38,AD
1058 DATA 0D,13,E9,19,90,06,8D,0D
1059 DATA 13,4C,CF,14,AD,0D,13,69
1060 DATA 41,8D,0D,13,AD,06,13,6D
1061 DATA 08,13,48,AD,07,13,6D,09
1062 DATA 13,8D,0F,13,68,6D,0B,13
1063 DATA 8D,0E,13,AD,0F,13,6D,0A
1064 DATA 13,8D,0F,13,38,E9,19,90
1065 DATA 06,8D,0F,13,4C,05,15,AD
1066 DATA 0F,13,69,41,8D,0F,13,AD
1067 DATA 0E,13,E9,19,90,06,8D,0E
1068 DATA 13,4C,1A,15,AD,0E,13,69
1069 DATA 41,8D,0E,13,A0,01,AD,0C
1070 DATA 13,CD,00,0B,D0,20,C8,AD
1071 DATA 0D,13,CD,01,0B,D0,17,C8
1072 DATA AD,0E,13,CD,02,0B,D0,0E
1073 DATA AD,0F,13,CD,03,0B,D0,06
1074 DATA 20,89,15,A4,FA,60,98,48
1075 DATA 68,4C,AF,13,A9,04,4C,AF
1076 DATA 13,A9,00,8D,00,FF,A9,20
1077 DATA 8D,00,D4,8D,01,D4,A9,09
1078 DATA 8D,05,D4,A9,0F,8D,18,D4
1079 DATA 60,20,61,15,A9,81,20,9C
1080 DATA 15,A9,80,20,9C,15,4C,96
1081 DATA 15,20,61,15,A9,11,20,9C
1082 DATA 15,A9,10,20,9C,15,A9,00
1083 DATA 8D,04,D4,60,8D,04,D4,A2
1084 DATA 70,A0,00,88,D0,FD,CA,D0
1085 DATA FA,60,END
```

END

Continued from pg. 119

white post. This keeps the computer on your side of the ring and will aid in quick pins.
Paul Jordan
Glenwood, Illinois

Treasure Island: When you get to the storm, type "tie rope" and you'll pass it easily.
Loc Huynh
Address Unknown

Ultima IV: Exit from Dungeon Hythlothe and you end up on a clearing in the Isle of the Abyss. Go west and you'll find the balloon. The White Stone is in a mountain valley only reachable by balloon. You can recognize it by an ankh that is one space north of a clear ground space in the Serpent's Spine Mountains.

The Black Stone is caught in a Moon Gate. Stand over the Moon Gate on Verity Isle before it comes up. Search there when both moons are new.

Search the deepest waters of the Cape of Heroes for the wheel of H.M.S. Cape. When used on a ship, it raises the hull points to 99, which is needed to pass the pirate ships guarding the entrance to the Abyss.

For the entry word of the Abyss, ask the rulers of the three Lesser Castles for the "word." Each ruler knows one syllable of the entire word.
Bob Kopperl
Jenison, Michigan

Wizard: To get a lot of points and a lot of men, choose CUSTOMIZED and on the second board choose JAIL. You will be in between a block. Push the button to climb up the rope, then go to the dot on the right and hold him on there. The points will mount up.
Mark Brenner
Chattanooga, Tennessee

Wizard: On the first screen of the expert level, just get a key and eliminate all the snowballs. Then go to the top of one of the two center ladders by inching up one side. Jump toward the center treasure inside the skulls and sit back while your score increases forever! The only way to get back out is to lose a man, but one from a hundred won't be too painful.
Chris Porosky
Elmira, New York

Wizard's Crown I: There are more survivors if you flee in tactical combat than in quick combat.
Jeff Lohmeier
Ferndale, Michigan

Zork I: When you encounter the Cyclops, type in the word ODYSSEUS. This will make the Cyclops run through the door into the house.
Dan Haveman
Grand Rapids, Michigan

If you have game tips of your own, write them up, one per full-size sheet, and send them to:
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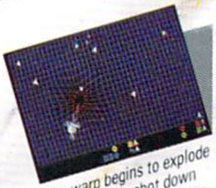
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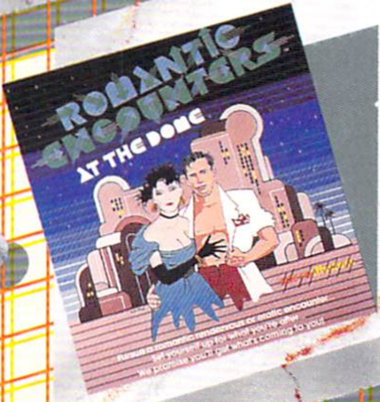


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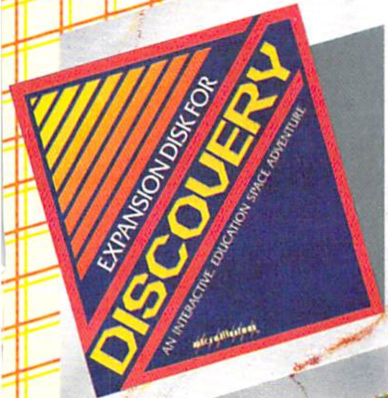


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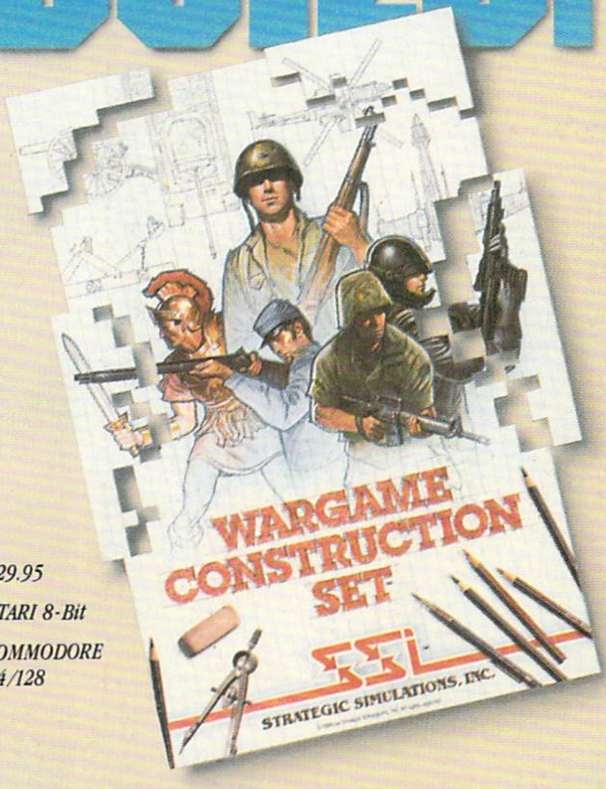
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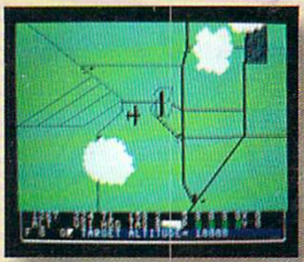
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